PULP & PAPER INDUSTRY

JULY 1944

Pacific Pulp & Paper Industry is published once a month, at 71 Columbia St., Seattle, Wash. Subscription: U. S., $4.00; Canada, $4.50; other countries, $5.00. Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879.

Pacific PULP & PAPER Industry

The Management Journal Covering North America's Wood Pulp, Paper and Cellulose Industries

JULY • 1944

Vol. 18 No. 7

MILLER FREEMAN
President

LAWRENCE K. SMITH
Manager

ALBERT WILSON
Editor

KEMPER FREEMAN
Production Manager

MILLER FREEMAN, JR.
Circulation Manager

PUBLISHING OFFICE
71 Columbia St.
Seattle 4, Wash.
Tel. MAin 1626

EASTERN HEADQUARTERS
370 Lexington Ave.
New York 17, N. Y.

OTHER OFFICES
Chester A. Fee
Associate Editor
1220 S. W. Morrison St.
Portland 5, Ore.
Tel. AT. 9593-9594

Stuart Leete
121 Second St.
San Francisco 5, Calif.
Tel. GA. 5887

Arthur Ponsford
124 W. Fourth St.
Los Angeles 13, Calif.
Tel. MUtual 8196

Charles L. Shaw
675 W. Hastings St.
Vancouver, B. C.
Tel. Marine 1520

SUBSCRIPTION RATES

United States	$4.00
Canada	$4.50
Other Countries	$5.00
Single Copies	$ .35
Review Number	$1.00

Editorials

MILLS GO WHERE THE WOOD IS

THERE seems to be some question in the minds of those who are more or less familiar with the pulp industry as to just what the demand will be after the war is over. Certain things, however, are developing which will have more or less effect on the future. One of the most important is the fact that in June of this year about 50 per cent of the sulphite pulps were being used for other than paper purposes. There is no question but what this use will increase rather than decrease.

In 1941 and 1942 the pulp industry was running at full capacity both in this country and in Canada. Stands of timber still are being depleted more rapidly than ever before. Especially is this true in the eastern United States and Canada. This has its effect in that certain mills will be forced to dismantle, and others will be driven further back for their supply, increasing their cost materially.

Under these circumstances the timber supply of the Pacific Northwest of Western Canada and of Alaska becomes more important than ever before. There have been several paper industry and publishing interests who have indicated a desire to look into the new U. S. government offer of timber in Alaska for a pulp mill (Pacific PULP & PAPER INDUSTRY, May, 1944).

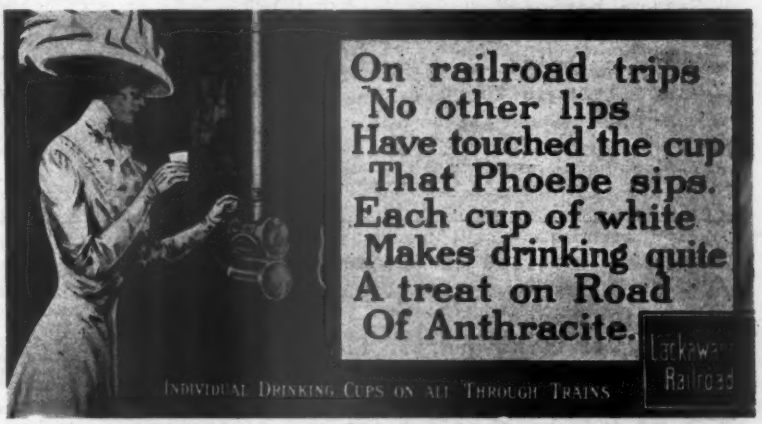
Most observers now recognize that the Canadian dominion and provincial governments are gradually hewing closer to a policy line that permits use of its natural resources—including wood—only in industries which erect their manufacturing plants on Canadian soil. For this reason, there is likelihood of more pulp mills being built in Western Canada.

ON BEING GOOD CITIZENS

REFERRING to the National Council for Stream Improvement research foundation contributed by the U. S. pulp and paper industry, which enables the famous Mellon Institute to turn its resources to finding economic ways of disposing or utilizing pulp mill effluent, The Oregon City, Ore., Courier recently said:

"We have often heard the remark, which in effect was 'just wait until we get sewage disposal plants installed all along the river, then we'll go after the mills and make them quit dumping refuse into the river.'

"It seems that the mills are being better citizens than the towns that make open sewers of our rivers—they are getting started on cleaning up their mess before a lot of the cities make any provision for taking their wastes



PHOEBE SNOW, the lady in white who didn't get dirty riding on the Lackawanna's famous old "road of Anthracite" during the first two decades of this century, has been re-incarnated by the railroad's advertising department. Phoebe is shown above in one of the early posters. "To do her share, Miss Phoebe fair selects her food with watchful care," ran a World War I jingle about the lovely Lackawannian. (P. S. Since the days of this poster, paper cups have become a "must" on trains.)

out of the streams."

There are several groups in the pulp and paper industry of North America which are aggressively tackling this age-old problem and refuse to be discouraged by many failures to find an economic and practical solution.

The National Council for Stream Improvement, Inc., which is an organization of the entire United States industry, and the organization set up in Montreal by the Canadian Pulp & Paper Association are both searching for the answer.

Also there is the new research program at the University of Washington, for which Washington state mills have pledged up to half a million dollars in five years—no small potatoes even in these days of astronomical governmental appropriations and debts.

And there should be mention of the trickling filter process for disposal of mill effluent, financed by the Wisconsin industry with a pilot plant at the Interlake Pulp & Paper Co.

RECOMMENDED MINIMUM PRODUCTION OF PAPER AND PAPERBOARD AND WOOD PULP ALLOCATION FOR THIRD QUARTER PROGRAM COMPARED WITH AUTHORIZED FIRST AND SECOND QUARTER PROGRAMS, 1944

(1,000 short tons)

Product or use	Third quarter		Second quarter		First quarter	
	Recommended minimum production	Wood pulp allocations	Authorized production (as of 6/5/44)	Wood pulp allocations	Authorized production	Wood pulp allocations
Total paper and paperboard	4,342	2,617	4,346	2,654	/a 4,221	/b 2,602
Paper, total	2,026		2,020		/a 2,037	
Newsprint	180		180		180	
Book and groundwood prtg.	479		479		479	
Fine	223		223		223	
Coarse	476		474		509	
Shipping sack	99		91		87	
Special industrial	60		63		65	
Sanitary	207		207		200	
Tissue	38		36		40	
Absorbent	29		24		23	
Building	237		244		231	
Paperboard, total	2,316		2,326		/a 2,184	
Container board	1,123		1,110		1,041	
Folding boxboard	/c 508		508		503	
Set-up boxboard	182		189		189	
Cardboard	17		15		13	
Building board	300		307		277	
Miscellaneous board	186		196		160	
Nonpaper Uses /1 .... Total	---	213	---	215	---	/d 186
(Total Pulp)	---	2,830	---	2,869	---	/e 2,788

Detail may not add to totals because of rounding.

/1 - Includes rayon, cellophane, plastics, explosives, moulded products, and for export.

/a - Actual first quarter finished production totaled 4,273,000 tons of which 2,089,000 were paper and 2,184,000 were paperboard.

/b - Actual wood pulp consumption was 2,565,000 tons.

/c - Of the total of 508,000 tons, 421,000 tons will be largely produced from waste, and 87,000 tons largely from pulp.

/d - Actual wood pulp for nonpaper use was 174,000 tons due largely to reduced exports.

/e - Actual total wood pulp use was 2,739,000 tons.

Source: Forest Products Bureau, War Production Board

The Story of TILESTON & HOLLINGSWORTH Co.; "Oldest U. S. Mill" Is One of Most Progressive

ONE of the most intriguing stories of this industry is that of the Tileston & Hollingsworth mill at Hyde Park, Mass., in the southern outskirts of old Boston.

Here is a mill which claims to be the oldest in existence in the country, and counting in the years of its predecessor on the same site, the old Sumner mill, there is none to dispute its 214 years of paper production as being tops in longevity.

Here is a mill which has survived in an unusually high tax area; not to mention some other complications such as those famous Boston blue laws regarding work on the Sabbath and holidays and Massachusetts state labor laws affecting women and boys.

Here is a mill which has survived for better than two centuries and is producing book, bond, and ledger papers at the rate of 60 tons every 24 hours for six days and nights per week.

But more intriguing even than its history is the fact that here is a mill whose men have shown ingenuity in developing new equipment on their own and who also have brought into this mill some of the most modern appliances of papermaking.

A representative of Pacific PULP & PAPER INDUSTRY took the Boston subway from South Station to Mattapan Square and then a bus out River Street to see the operations of this old brick mill at first hand. It is eight miles from Boston proper. He heard lots of ancient history, but saw nothing but what was modern and up-to-date.

History

● But first about the history. The Tileston & Hollingsworth partnership was formed in 1801, and with that date, the mill could claim to be just as old as any in the country. However, under its "parent company" it goes back to 1728 and there are no challengers to that claim of being oldest.

THE HOLLINGSWORTHS HAVE BEEN PAPER INDUSTRY LEADERS IN NEW ENGLAND SINCE 1801.
AMOR HOLLINGSWORTH (left), is Chairman of the Board, Tileston & Hollingsworth Co., and President, Penobscot Chemical Fibre Co.
AMOR HOLLINGSWORTH, Jr. (right), is President, Tileston & Hollingsworth Co., and Vice President, Penobscot Chemical Fibre Co.

There have been no Tilestons in the business for a couple of generations but the Hollingsworth line shows no signs of dropping out of the picture.

Amor Hollingsworth is chairman of the board of Tileston & Hollingsworth Co., and president of Penobscot Chemical Fibre Co. His son, Amor Hollingsworth, Jr., one of the outstanding young men of the industry in New England, is president of Tileston & Hollingsworth and vice president of Penobscot.

The father is a member of the industry's hard-working and important pulp allocations advisory committee for the War Production Board. While he has spent much of his time in Washington, his son has actively taken responsibilities in the business, which have their headquarters at 213 Congress St., Boston. The Penobscot mill at Great Works, near Oldtown, Maine, makes bleached soda and sulphite pulp. This mill is under the experienced managership of Walter V. Wentworth.

A brother of Amor, Sr., Valentine Hollingsworth, was president of Hollingsworth & Vose Co. until his death in 1943. Hollingsworth & Vose has paper mills at East Walpole and West Groton, Mass., and is famous for being the company that invented rope paper or manila.

Another Hollingsworth family branch in Massachusetts was connected until about 30 years ago with the prominent Hollingsworth & Whitney Co. of Boston, which operates mills at Winslow and Madison, Maine, and Mobile, Ala. Incidentally, another distinguished father-and-son combination are among top men in that company now, with M. L. Madden as president and his son, James L., a vice president.

In the Tileston & Hollingsworth organization, Arthur V. Howland is vice president, secretary and assistant treasurer; E. H. Clapp is treasurer, and Howard Wallingford is sales manager. W. D. Duryea is vice president of the Penobscot Chemical Fibre Co., of which Mr. Clapp also is treasurer.

Inventor of Shake Roll

● Frank S. McDonnell, the veteran manager of the paper mill, is the inventor of a shake roll which was first put into operation in that Hyde

CONCERNING OUR COVER PICTURE

● This photograph shows the largest of three paper machines at the Tileston & Hollingsworth Co. paper mill in Hyde Park, on the southern outskirts of Boston, Mass. It has a 122-inch wire.

Tileston & Hollingsworth Co. have been "Papermakers for 135 Years," to quote the title of one of their recent booklets. But paper actually has been made on the site of this mill for 214 years, which is believed to be the record for continuous production in the United States.

Park plant. Mr. McDonnell hails from Maine and has spent a lifetime in the New England industry, most of it at the Tileston & Hollingsworth mill. He went to Hyde Park from Holyoke, the great papermaking center on the Connecticut River, about twenty years ago.

Maurice Labelle, another paper maker trained in the practical New England school, is the assistant manager of the paper mill.

At Hyde Park there are seven beaters, five of them being E. D. Jones 2,000-lb. machines and the others are 1,100-lb. Umpherston beaters. There are seven jordans, two washers and one rotary rag cooker. There are three Fourdriniers, trimming 66, 92 and 108 inches. The big machine is shown in the cover picture of this issue.

There are 270 on the payroll at this mill. Of this number, 35 are women, employed in finishing departments. This is the same number of women approximately, and in the same jobs, as before the war. The turnover of labor in this mill is far below average. Most of the men are over draft age. Employes of Tileston & Hollingsworth are typical New Englanders—there are no drifters or transients and they have made a life work of their papermaking. In fact, many of the employes have had fathers and grandfathers in the mill before them.

The McDonnell shake, patented by the manager, has been used for a number of years but there are many New England papermakers who think it has never been given the publicity it deserves and that it should be better known in the industry.

The breast roll and shake roll, as shown in our cover picture, are the only parts of the Fourdrinier that shake for the purpose of agitating the wire. The shake roll is half way between the suction box and the breast roll.

One advantage of Mr. McDonnell's invention is that it shakes the wire without making it necessary to shake the Fourdrinier frame or the tube rolls.

Another advantage is that it permits comparatively faster shaking of the wire with utilization of less power. The trick that Mr. McDonnell hit upon was in finding just the right position for the shake roll, which is on springs. Now the McDonnell shake is marketed by Rice, Barton Corp.

Quick-Mixing Chest

● Another development at the Hyde Park mill which puts Tileston & Hollingsworth in the forefront of modernized mills is a quick-mixing chest. The company makes no claims of being unique in this regard, but this installation shows that the "oldest mill" can also be one of the most progressive.

ERNEST MAHLER, executive Vice President of Kimberly-Clark Corp., Neenah, Wis., who has been elected a director of Allis-Chalmers Manuf. Co. A chemical engineer, Mr. Mahler has been with Kimberly-Clark since 1914 and is holder of many pulp and paper patents. He was appointed a member of the purchase policy advisory committee of the U. S. War Department in January, 1943, after serving as chairman of the industry's chlorine committee and overall advisory committee to the WPB. During World War I, Mr. Mahler developed a cellucotton wadding and absorbent from spruce, relieving the shortage of surgical cotton. Out of this resulted face tissue and insulating products.

It feeds its chemicals in a continuous stream between the chests and the paper machines, which enables the operator to quickly change the sizing and color characteristics.

This quick mixing chest changes color at the machine in only about ten minutes.

Vortrap Classifier

● Another up-to-date piece of equipment found in the Hyde Park mill is the Nichols Freeman Vortrap Classifier, which is described more in detail in the article following this one. This so-called Vortrap is a pre-war development but only a few had been installed and considerable more activity in this line is expected when the mills start putting in new equipment.

The purpose of the Vortrap is the removal of pipe scale, grit, bark specks, shives and other objectionable dirt from pulp stock and, in paper mills, such as the one at Hyde Park, it serves to make possible a cleaner paper. It classifies and separates material in liquid suspension by means of centrifugal force.

In paper mills, some companies have reported that their wire life has been increased as much as 35 per cent since the installation of Vortrap Classifiers because of the removal of abrasive grit from the pulp. At this time with wood pulp scarce, and much waste paper being reclaimed, it serves to help solve a serious dirt problem.

The famous memorial at nearby Plymouth Rock commemorates an event only a mere century older than the paper industry which has been in operation at Hyde Park, but there is a modern spirit as well as a faith in old tried methods at this mill.

In the company's booklet, "Papermakers for 135 Years," there is this interesting comparison:

"In 1730, in our mill on the Neponset River in Milton, making paper was then, as now, a process of felting together cellulose fibers. Now, however, the materials from which the papermaker has to choose have multiplied, and the equipment and machinery at his command are ones which our forefathers never would have dreamed.

"To illustrate this: In 1728 the Provincial Government issued a charter to Thomas Hancock, the uncle of the illustrious John (Signer of the Declaration of Independence), and others, allowing them to set up a paper mill on the Neponset River, and in return for this investment of capital in a needed industry, protection was promised this infant company provided it made 'in the space of twelve months next after the Tenth day of December next, Two Hundred Rheams of good Merchantable Brown Paper and Printing Paper Sixty Rheam thereof at least to be Printing Paper, and within the space of twelve months then next coming shall cause to be made within this Province Fifty rheams of good Merchantable Writing Paper of equal goodness with the Paper commonly stampt with the London armes over and above the aforesaid Two Hundred Rheams of brown Paper & Printing Paper.'

"Today that much paper is made in two or three hours in our mill, which is the descendant of that first paper mill in New England; and the finished product is far superior."

Even though making the finest types of papers, Tileston & Hollingsworth has fast machines for that kind of work. Unofficially,

they are right around a production speed of 450 feet a minute.

The United States industry has grown from two little mills in the early 1700's, making in one year less than a moderate sized newspaper now uses in a single day, to one that now produces more than five million tons annually.

Tileston & Hollingsworth, although growing with the years since the inception of its parent company in 1728, and now making paper with the latest devices, is still able to fill orders for rag and wood pulp papers of the quality and workmanship incumbent on a concern which does not take lightly the heritage of so many years' experience and growth in skill.

"Papers of Old Fashioned Quality" they are called and bear the trademark of an old-fashioned young lady in hoop skirt. In the list of products are: Tru-Color Cover and Text Paper, Athena Plate, Blue Hill Text, City English Finish, City Antique, No-Coat Gloss, Dorchester Antique, Dorchester Plate, Dorchester Super, Flemish Book, Listing Ledger, Mattapan Index Bristol, Mimeograph, Tiho Bond, Thinopake and Fairmount Offset.

English finish, machine finish, antique super calendered book, Bible, sulphite ledger and bond, etc., are their products according to the common names of the industry and even with shortages of high grade pulp and of rags, they keep up their highest standards.

Pete Sinclair Becomes West Linn Asst. Manager

● P. T. Sinclair, former resident manager of the National Paper Products division of Crown Zellerbach Corp., Carthage, New York, will become assistant resident manager of the West Linn, Ore., division.

Mr. Sinclair entered employment of Crown Zellerbach Corp., at Port Townsend, Wash., as an electrician during construction days in 1928, moved to Port Angeles in 1930 to be with Central Engineering during construction of the Olympic Forest Products mill, and in 1932 was transferred to Carthage to become plant engineer. His promotion to resident manager at Carthage came in 1938.

It was announced last month that Ray Schadt, attached to Crown Zellerbach headquarters in San Francisco prior to a tour of duty as a captain in the Chemical Warfare Division, U. S. Army, is now resident manager at Carthage under Charles Grondona, general manager.

How Nichols Freeman Vortrap Classifier Operates

● The Nichols Freeman Vortrap Classifier, mentioned in the preceding article, has been installed in a number of mills and is credited by some companies with considerably extending the life of their wires by removal of abrasive grit.

With increased use of waste paper in mills, says F. B. Schilling, vice president of Nichols Engineering & Research Corp., 60 Wall Tower, New York 5, N. Y., the resulting increased dirt problem makes the Vortrap of even greater value to the industry. His company handles the equipment.

Vortrap installations in pulp mills have served to remove pipe scale, grit, bark specks, etc. A number of paper mill installations have helped to clean paper furnish.

The Vortrap has no complex, moving parts. It depends for actuating force on pressure energy supplied externally by a pump and requires the minimum of attention to maintain continuous operation.

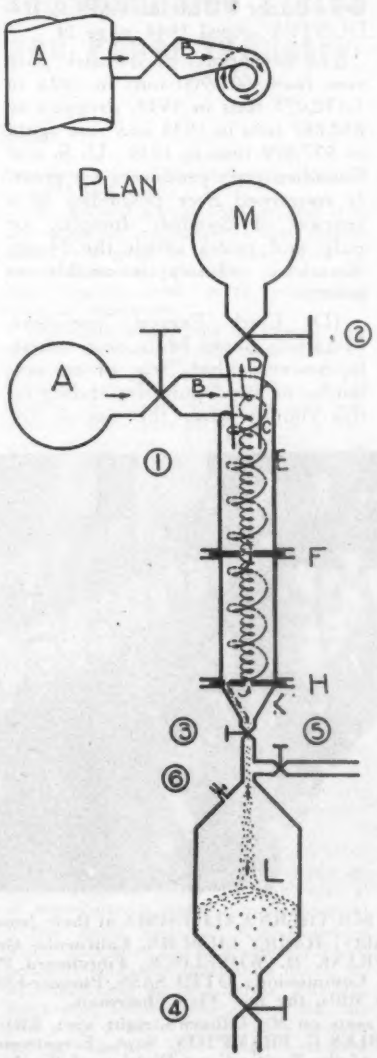
However, forces and currents within the Vortrap are in delicate balance and may be upset by improper handling.

The accompanying illustration shows how it operates.

The pump delivers the pulp stock, or other suspension, under a pressure of not less than 25 lbs. per sq. in. to the pipe line, or header "A." On opening the inlet valve (1), it flows through the narrowing space of nozzle "B" into the annular helical space "C" which surrounds the pipe or core "D." In this way, the pressure is converted into a high linear velocity in "B," and in turn, into a downward swirl in "C."

Under this impetus, the incoming suspension follows down the wall of the narrow cylindrical chamber "E" until it reaches diaphram "F." Here, the pressure set up directs the stock and the dirt through the opening in the diaphram.

Under proper operating conditions, the swirl and downward momentum of the suspension is so great the peripheral swirl continues, somewhat diminished, into this lower chamber which is provided at the bottom with diaphram "H." The suspension passes through an opening in diaphram "H" near the side wall into cone "K," where it reverses upon itself and passes upwards, at grealy increased velocity, through the opening in the center of diaphram "H," the suspension continuing upwards forming a vortex within the downward-flowing liquid returning through the center of the hole in the upper diaphram "F," escaping finally through the central outlet pipe "D."



The suspended heavy particles, or impurities, follow the liquid down the wall of the chamber "E," being driven by centrifugal force away from the center, and towards the wall.

As the suspension passes through the hole in the diaphram "F," the particles are flung out of the suspension, or separated from the fibers, and work down the wall to the diaphram "H" through which they pass, into the cone or funnel "K" by means of the opening next the wall, where there is a high positive pressure. Any particles that manage to stay in the liquid as it reverses and speeds up just above the diaphram "H" are flung out of the uprising vortex.

The particles of heavy material or impurities continue on down, under the action of gravity, and settle through the clear liquid which fills the small pipe, leading through the valve (3) to the reservoir "L," which is closed and also filled with clear liquid.

Periodically, the valve (3) is closed, and the accumulation emptied out of "L" through the valve (4), air being let in by opening the petcock (6). The reservoir or receiver and the small pipe are then refilled with clear liquid through the supply line and valve (5), and with valves (4), (5) and petcock (6) closed, valve (3) is again opened.

From this, it will be seen that proper operation depends on the provision of the correct pressure at the inlet nozzle "B" in order that the correct velocities and forces may be produced."

Also, in order that the rejected particles may settle readily into the receiver, the small piping joining it to the cone "K" must be filled with clear liquid. This is accomplished by periodic backwashing with the valve (5).

When handling paper stock or pulp, the limits of capacity of a single unit can be calculated as 1 short ton of A. D. pulp per day actually passed through the Vortrap for each 0.1% consistency. Generally, the efficiency of the Vortrap holds up well until 1.4% is reached, when it may fall off slightly.

U. S. State Department Plans Imports Of 1,250,000 Tons of Swedish Pulp Annually

F. O. Fernstrom, President, Fernstrom Paper Mills, tells Papermakers and Associates of Southern California of proposed shipments, which would be about the same as in peak years of dumping / / / However, some believe expanded market will take care of North American production / / / Frank H. Wheelock takes over as new PASC Chairman.

THE U. S. State Department is preparing to make an agreement with Sweden for the importation of 1,250,000 tons of pulp annually from that country by the United States, according to F. O. Fernstrom, president of the Fernstrom Paper Mills, Pomona, Calif.

Mr. Fernstrom discussed the planned agreement with Sweden during the course of a review of the pulp and paper industries of several European countries in an address which he made before the Papermakers and Associates of Southern California, at their June 15 meeting at the Rosslyn hotel, Los Angeles. About 50 members and guests attended.

Mr. Fernstrom pointed out that an agreement to bring in one and one-quarter million tons would make the imports from the Scandinavian country about equal to peak prewar shipments.

(Goesta Hall, Swedish sales representative for the pulp industry, arrived in the United States last December and headquarters have been set up in New York to solicit customers for Swedish kraft and sulphite pulp. Mr. Hall hoped to start deliveries this year from a stockpile of over 400,000 tons.

(A high government official told Pacific PULP & PAPER INDUSTRY that the U. S. government would have to subsidize some kraft pulp manufacturers if there is a big influx of Swedish kraft pulp after the war.

(Eric Lagerloef, U. S. Department of Commerce expert, said Sweden would be unable to ship pulp here on peak pre-war scale, when it was dumping in the American market—Pacific PULP & PAPER INDUSTRY, April 1944, page 11.

(U. S. imports of Swedish pulp rose from 601-900 tons in 1928 to 1,130,075 tons in 1937, dropped to 830,087 tons in 1938 and rose again to 957,879 tons in 1939. U. S. and Canadian pulp producers are greatly concerned over possibility of a renewal of Swedish dumping of pulp and prices which the North American industry is unable to meet.

(D. Clark Everest, president, Marathon Paper Mills, said recently, however, that "fear of an avalanche of wood pulp descending on this country after the war or for years to come is pure bunk."

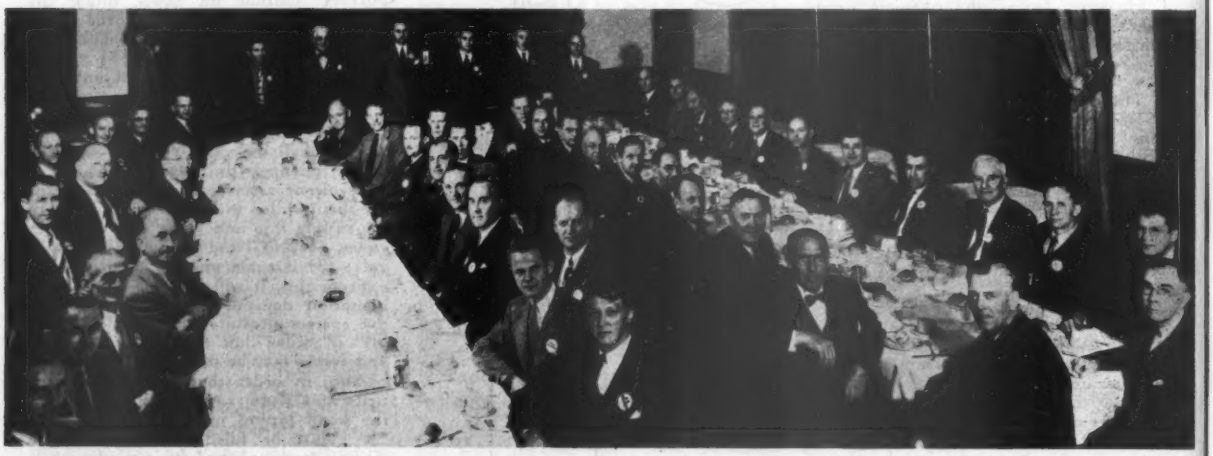
(R. A. Hayward, president, Kalamazoo Vegetable Parchment Co., predicted high consumption of paper starting a year or two after the war, permitting the pulp industry to "enjoy a full market for several years."

(Vance P. Edwardes, International Paper Co., president of TAPPI, predicted importation of chemical pulps from Sweden at a price below the present market but added that "will not be too upsetting in the long run.")

Mr. Fernstrom, in his talk, pointed out that many people in the industry are thinking that when the war is over great quantities of pulp will be shipped over here. He joined with others who have expressed the view that expanded markets will take care of the North American pulp as well as the imports.

Reviews Other Countries

● While Norway was a great producer before the war, Mr. Fernstrom said not much pulp came from that country to the United States. Poland had a production of



PAPERMAKERS AND ASSOCIATES OF SOUTHERN CALIFORNIA at their June meeting in Los Angeles:

Head table group (standing—left to right): HARRY LILBURN, California-Oregon Paper Mills; F. O. FERNSTROM, President of Fernstrom Paper Mills; FRANK H. WHEELOCK, Fibreboard Products Inc., new Chairman of PASC; HOMER R. ROSS, California Railroad Commission; OTTO SASS, Pioneer-Flintkote Co., the Program Chairman, and RICHARD BUCKLEY, Fernstrom Paper Mills, the new Vice Chairman.

Right to left (correct) in the first three seats on Mr. Lilburn's right are: BRUCE BROWN, Jr., Fibreboard Products Inc., the new Secretary-Treasurer; CHARLES G. FRAMPTON, Supt., Fernstrom Paper Mills, past Chairman of PASC, who just completed a term as Chairman of the Pacific Coast Division of the American Pulp & Paper Mill Supts. Assn., and HERMAN N. BERG, California-Oregon Paper Mills, who gave a report on recent industry develepoments.

high grade pulp that went mostly to southern Europe. Latvia had two mills. Esthonia has less than 100,000 tons production for export, which, he said, went to Europe and very little to the United States.

Finland, said Mr. Fernstrom is a question mark. It exported around 1,250,000 tons of high grade sulphite pulp; mostly shipped to England. "As I speak," he said, "Russian armies are closer to Vieborg, and most paper mills are in that area. I am afraid we won't get any pulp from Finland when the war is over."

Meanwhile, said the executive, we must rely on what we get from North American industries. "The outlook is very dull because the government is going to take much of it."

Another speaker was Herman N. Berg, pulp and paper technical expert now temporarily connected as technical advisor to California-Oregon Paper Mills, Los Angeles. He gave a talk on "Current Events in the Industry, a regular feature of the meetings.

Another speaker was Homer R. Ross, California Railroad Commission, whose subject was "Surplus Natural Gas Situation in Southern California." His talk was followed by a round table discussion.

The new program chairman, George Cunningham, reported on the TAPPI meeting at Portland, discussed several of the papers read there, and then outlined his program for the coming year. The committee's aim is to divide the year into three talks on paper and board manufacture and three on conversion. Otto Sass concluded his year as program chairman and received compliments for his work.

The meeting was the first at which the new chairman, Frank H. Wheelock, of the Vernon Division, Fibreboard Products Inc., presided, succeeding W. A. Kinney, Pioneer-Flintkote Co. Other new officers present were Richard Buckley, Fernstrom Paper Mills, vice chairman, and Bruce Brown, Jr., Fibreboard Products Inc., secretary-treasurer.

The meeting concluded on a unique note, yet one which, coming so soon after invasion, with the attendant dangers to family members of practically all present, found a unanimous response. Chairman Wheelock rose and asked the members to follow him in reciting the "Lord's Prayer."

Many New Processes and Machines Listed As Beneficial to Pulp and Paper Industry

By H. N. BERG
California Oregon Paper Mills.

(Excerpts from his review of events at PASC meeting in Los Angeles).

● The development in Wisconsin of a machine for automatic forest plantation, is very promising for our industry although the mills cannot in our generation expect to profit from it.

U. S. McMillan, of Marinette, Wis., has a new process which he claims will greatly relieve the acute paper and pulp shortage. The new process is said to make pulp from forest waste, utilizing all of the tree except the bark, twigs and leaves, and making available many pieces of wood hitherto not used for pulp manufacture. Its base is in the preparation of the wood. Mr. McMillan calls it a defiberizing process which literally cards the raw fiber from the green log, and this yielding instantly to chemical treatment to dissolve the organic matter, leaving the cellulose. The raw fiber as prepared by his process does not have to be cooked under steam pressure, but the same cooking chemicals are used as in cooking the chipped wood.

Besides the mechanical preparation, the outstanding economical feature, Mr. McMillan said, is in the time required for dissolving the so-called lignin which is the oxidized compound of the organic substance which transforms during the drying-out period into what is known as lignin. Under the McMillan process, the dissolving takes place while the organic matter is soft and his cellulose yield is higher per cord of wood, he declares. His defiberizing process does not break up or otherwise destroy the fibers as they grow in the tree, thus preserving their natural integrity.

Continuous Pulping

One Mr. Muskau in Germany last year developed a continuous pulping process, of which I was not able to get detailed information before this meeting. (In the initial stage of his process he may have utilized the defibration caused by the Allied bombs.)

The Roberts groundwood grinder is a new piece of machinery which sounds almost too good to be true. The 10 points of advantage indicate savings and improvements from every imaginable angle of operation.

The latest in the field of suphite mill effluent utilization is the substitution of sulphite liquor for zinc dust in organic chemical recations. For instance, nitro benzene is reduced to aniline and azo benzene, while part of the lignin is oxidized to vanillin. Another product of this reaction is the desulphonated lignin. There is nothing secret about this process. It was developed in Germany four years ago, but I did not hear about it until a few months ago. I owe this last information to Dr. Karl Friis, Rhinelander Paper Mills.

No More Head Box?

The development of a paper machine entirely without a head-box, invented by Mr. Curt Wandel, may deprive the papermakers of one of their frequent topics of discussion and frequent cause of mill headaches. A Yankee machine of this type has been in operation since the first of the year.

Downington Manufacturing Co. has featured a new "Controlled Vat System" for cylinder machines.

The Dings Magnetic Separator Co., Milwaukee, Wis., are manufacturing an electro-magnetic device for the removal of miscellaneous tramp iron from stock.

The April issue of "Oxy-Acetylene Tips," published by the Linde Air Products Co., carries an interesting article on self-sharpening machine knives. The self-sharpening feature results from the fact that when a knife, which has a core or cutting edge of hard abrasion-resistant alloy, is set in a base of less wear-resistant material such as mild steel, it will automatically sharpen itself as the sides wear away a little at a time, leaving the hard alloy cutting edge exposed and sharp at all times.

An important series of patents has been announced by Marathon Paper Mills, Rothschild, Wis. The inventions relate to food packaging materials and include a new type of cheese wrapper, heat-sealable package labels, self-sealing laminated packaging papers and a new thermoplastic, heat-sealable composition. The inventions were developed in Marathon's research department to replace critical war materials.

The "Faurot Protective Indentification System, Inc.," New York, has developed a treated paper for fingerprinting which does ont require inking of fingers. A special coating on the paper brings out fingerprints. Used extensively by banks and industrial organizations, police departments and even by dog-kennels for "nose-printing" of thorough-breds.

John Delmonte, Technical Director of the Plastic Industries, Techincal Institute of Los Angeles, has developed a new bonding, casting and lamination ingredient named Resin X. This substance is claimed to have great possibilities in the paper industry when released after the war.

ATTENDANCE

The following members and guests attended the PASC meeting:

Lloyd I. Ramsey, Adhesive Products, Inc.; **John Herbert,** Blue Diamond Corp.; **T. D. Howell, L. H. Butcher Co.; H. W. Aitchison,** California Container Corp., **H. W. Berg, A. H. Hatch, E. C. Hill, Harry Lilburn,** California-Oregon Paper Mills; **A. R. Bollaert, G. G. Halvorsen, Bill Monette,** Dicalite Corp.; **H. L. Sherrei,** El Rey Products Co.; **Robert Baum, Richard Buckley, F. O. Fernstrom, C. G. Frampton,** Fernstrom Paper Mills; **Bruce T. Brown, Jr., G. E. Eberhard, Frank**

H. Wheelock, Fibreboard Products, Inc.; P. B. Thieme, Infilco, Inc.; G. F. Rucker, Leeds & Northrup Co.; F. W. Adams, Los Angeles Paper Box Factory; Geo. M. Cunningham, National Oil Products Co.; Arnold O. Beckman, National Technical Laboratories; Dr. Guy Pulley, Pacific PULP & PAPER INDUSTRY; U. A. Hammett, The Permutit Co.; C. G. Bernecking, C. R. Kyle, Philadelphia Quartz Co.; Howard Bidwell, Grover C. Brown, Robert E. Cooper, Asger Eilersgaard, Geo. A. Frogner, Glen A. Phillips, Otto Sass, Pioneer Flintkote Co.; J. W. Jamison, Park Woolley, Rheem Mfg. Co.; L. I. Crabbe, G. H. Leppold, Schumacher Wall Board Corp.; G. Biggs, R. C. Davis, J. E. Hartford, E. W. Odenwaldt, U. S. Gypsum Co.; J. W. Braley, Synthetic Division, U. S. Rubber Corp.; Claude M. Sharp, R. W. Stevens, West Coast Paperboard Mills; Frank L. Mark, Western Asphalt Association; R. J. Blackinton, Western States Lacquer Co.

Hydrapulper Patent Infringement Charged

● Suit was filed in U. S. district court in New York on June 29 against San-Nap-Pak Mfg. Co., New York, by the Cowles Co., Cayuga, N. Y., and the Black-Clawson Co., Hamilton, Ohio, sole licensees under the Cowles patent, charging infringement of U. S. Patent No. 2351492.

It is claimed that San-Nap-Pak Mfg. Co. built, and installed at their Wilmington, Del., plant a pulper in direct violation of the patent. The hydrapulper, Cowles-Black-Clawson, has proven revolutionary in the method of reducing pulp and paper to slush form.

More WPB Restrictions On Materials Are Lifted

● Three steps which are being taken at once to help industry plan and prepare for the reconversion period were enumerated by Donald M. Nelson, WPB's Chairman:

(1) An order is now being prepared authorizing any manufacturer to acquire enough materials and components to make and test a single working model of any product planned for postwar production. Under this order, any manufacturer is entitled to apply to WPB regional or district offices for necessary materials and components, which will be supplied either out of existing surpluses, or through special allocations.

(2) Instructions are given to revoke WPB orders limiting use of magnesium and aluminum so that manufacturers will be able to obtain these metals and fabricate them into essential end products whenever and wherever manpower is available. Existing restrictions on manufacture of end products from aluminum and magnesium will be lifted by vesting in WPB regional offices authority to permit manufacture of items from these metals—manpower situation permitting.

(3) Beginning July 1, manufacturers will be allowed to purchase machinery, tools and dies for civilian production, whenever possible out of existing surpluses listed with WPB and Defense Plant Corporation, but if necessary, through placing of orders validated by WPB for production at times and under conditions that will prevent interference with war production.

Two Mayors Are Also Top Industry Executives

LOUIS W. SUTHERLAND (left), the Mayor of Kalamazoo, Mich., and R. W. SIMERAL (right), the Mayor of St. Helens, Ore., are also outstanding figures in the pulp and paper industry. Mr. SUTHERLAND is Chairman of the Board of the Sutherland Paper Co., and Mr. SIMERAL is Vice President and General Manager of Fir-Tex Insulating Board Co.

Mr. SUTHERLAND recently received an honorary degree in law at Kalamazoo College, conferred in recognition of his worth as a leading citizen, cultured gentleman of humanitarian interests and successful business man. His company, founded in 1917, makes 400 tons a day of highly critical paperboard and a diversified line of packages and specialties. It employs 2,500 men and women.

Mr. SIMERAL, who on Jan. 1 began his third two-year term as Mayor, heads a company which has become nationally famous for its special pulp product, Fir-Tex, of which it manufactures 250,000 sq. ft. (half inch basis) daily. When he first became Mayor, the city of St. Helens was considerably in debt. Now it has a $20,000 sinking fund. At the same time he has put in many civic improvements. Latest of these are a new city jail, a new comfort station, a garage for city equipment, employment of a full time engineer and addition of two policemen to the one-man force.

Ober, Brainerd and Smith Visit Northwest Mills

● J. L. Ober, president of the Coos Bay Pulp Corp., and vice president in charge of operations of the parent concern, Scott Paper Co., Chester, Pa., and Forrest W. Brainerd and C. Wylie Smith, both vice presidents of Coos Bay Pulp Corp., made a tour of several Pacific Northwest mills during June.

Mr. Ober and Mr. Brainerd arrived in Portland, Ore., from Chester on June 6, and were met by Mr. Smith, who is in charge of the Scott company's western pulp operations.

They attended the annual wage conference held in Portland by the Pacific Coast Association of Pulp & Paper Manufacturers and representatives of two American Federation of Labor brotherhoods, which is regarded throughout the industry as model example of collective bargaining.

They inspected the Anacortes, Wash., and Empire, Ore., pulp mills of the Coos Bay Pulp Corp., attended a directors' meeting of the corporation in Portland and also visited the big sulphite pulp mills of Soundview Pulp Co. and Weyerhaeuser Timber Co. in Everett, Wash., and the Puget Sound Pulp & Timber Co., in Bellingham, Wash.

Others attending the directors' meeting were K. O. Fosse and F. C. McColloch, who is secretary of the corporation. Mr. Ober and Mr. Brainerd left for the East from Portland on June 16.

Cashmore, President of Paterson Parchment, Dies

● Charles H. Cashmore of Torresdale, Pa., president of Paterson Parchment Paper Co., Bristol, Pa., died from a heart attack May 26 in New York. He was 61.

Mr. Cashmore had served a quarter of a century with Paterson Parchment, beginning by installing a new accounting system for the expanding business in 1919 and working up to assistant treasurer and in 1927 to treasurer. At that time the sales department was reorganized and he was placed in charge. He was elected president in 1937.

He also was president of the Vegetable Parchment Paper Mfgrs. Assn., president of Paterson Pacific Parchment Co. of San Francisco and treasurer of General Container Corp.

Loddengaard On Western Trip for Bulkley-Dunton

Pierre M. Loddengaard, technical department chief of the Bulkley, Dunton Pulp Co., spent a few weeks in June on the Pacific Coast visiting mills and headquarters of United States and British Columbia pulp and paper companies.

Mr. Loddengaard recently has been prominently engaged in assisting in installations for the development of deinking and reprocessing of old newspapers to help relieve the shortages in newsprint and other paper supplies.

Seeking Mill Recruits

● V. C. Gault, personnel supervisor, Camas, Wash., division, Crown Zellerbach Corp., returned recently from Idaho where he met War Manpower Commission representatives in various cities relative to employment of Idahoans in the Camas mill. Mrs. Berney, women's personnel supervisor for the same organization, returned a week prior from a similar trip in eastern Washington.

Navy Okays Alcohol Plant for Soundview Co.

● The Navy Department will recommend to the U. S. War Production Board that a plant manufacturing alcohol from sulphite pulp mill effluent be built at Soundview Pulp Co., Everett, Wash.

The estimated cost of the plant would be $1,300,000, to be financed under grant of federal funds from the Defense Plant Corporation.

This would be the third North American sulphite pulp mill to go into production of alcohol as a by-product as a war measure.

The million-dollar plant now under construction with federal funds at Puget Sound Pulp & Timber Co., Bellingham, Wash., is expected to be in operation next November or December. Foundations have been completed and steel construction is now going up at that site.

On June 13, a lease was filed in the county auditor's office in Bellingham, covering the land on which the alcohol plant is being built. The Puget Sound company is named as lessor; the Defense Plant Corp. as lessee. The lease runs for 25 years for which the government agency is to pay $1 a year. (For terms of contract between Puget Sound and government see p. 53, June, 1944, Pacific PULP & PAPER INDUSTRY).

Ground tests also have begun at Springfield, Ore., preparatory to construction of another alcohol plant there, to make alcohol by the Scholler process from sawdust. There are reputed to be more sawmills within 20 miles of Springfield than in any other similar area in the world.

A smaller alcohol reduction plant at the Ontario Paper Co., Thorold, Ont., went into operation June 18, 1943.

There had been smaller pre-war experiments in making alcohol from mill effluent in North America, at West Virginia Pulp & Paper Co., Mechanicsville, N. Y., and Crown Willamette Paper Co., West Linn, Ore.

The Soundview project, if carried through, will unquestionably be the largest such producer in the world; a distinction which otherwise would go to the Bellingham mill. Pulp capacity at Everett is 550 tons daily compared with 460 tons at Bellingham. It is anticipated that 16 to 18 gallons of alcohol can be produced to every ton of pulp.

Congressman Henry M. Jackson, representing the district in which both the Everett and Bellingham mills are situated, revealed the Navy Department's decision.

"Am reliably informed that the engineering report will be filed shortly," he said, "and that Soundview Pulp Co. will request priority permission to construct plant with possible federal assistance. Estimated cost of plant is approximately $1,300,000."

A Pacific PULP & PAPER INDUSTRY representative in Washington was reliably informed that the government has its eyes on other pulp mills for possible alcohol reduction plants—at least two in the South and one in the Middle West. The largest sulphite mills are likeliest prospects because of their greater capacities. Transportation to plants where the alcohol is made into rubber and explosives for war purposes is also a factor.

It is understood that future developments in the war in Europe and the Pacific, determining the extent of requirements for alcohol and the grain and petroleum situations (these materials are also used in making alcohol), will have an important bearing on how many more plants are constructed.

Dr. Rosten Surveys Powell River Plant For Alcohol By-Product

● Dr. M. M. Rosten, who formerly owned and operated the Kutno Chemical Works in Poland and who recently supervised the establishment of the alcohol reduction plant at Thorold for the Ontario Paper Co., has been making a complete survey of the possibilities of utilizing sulphite liquor effluent at the Powell River Co.'s mill at Powell River, B. C.

Dr. Rosten, accompanied by M. H. Jones and W. K. Voss, operating officials of the Thorold alcohol plant, spent a week at the British Columbia paper town examining the whole situation and they will soon make a report to President Harold Foley. What the company does will be largely determined by the recommendations contained in this report.

From a production standpoint Dr. Rosten said he was favorably impressed; in fact, he felt certain that Powell River had an abundant supply of raw material for the manufacture of industrial alcohol. However, the marketing possibilities are yet to be canvassed thoroughly. Whatever is done at Powell River will be on a straight commercial basis, and for that reason the company intends to make a close check on selling prospects before embarking on the necessary investment, as part of its large-scale postwar expansion program outlined in the May, 1944, Pacific PULP & PAPER INDUSTRY.

Powell River Co. produced almost 200 tons of sulphite pulp daily, representing about 50 per cent recovery from wood, and about 150 tons of lignin are now going to waste. Only the sugar content of this material can be effectively used in the manufacture of alcohol.

The setup would lend itself to the manufacture of several by-products, the most important of them being dry ice of CO_2. It is estimated that four tons of dry ice or 12 tons of CO_2 could be produced daily.

The Thorold alcohol plant of the Ontario Paper Co. has a ready outlet for its production at the synthetic rubber plant of Polymer Corporation, the Canadian government-financed enterprise at Sarnia, Ont., of which J. R. Nicholson of Vancouver, B. C., is the president. No such market exists on the coast at the present time for industrial alcohol, although the production of gasoline is one of the interesting possibilities in connection with such an industry in British Columbia.

Dr. Rosten's plant in Poland, before the occupation by the Nazis, was producing 14,500 gallons of absolute alcohol daily as well as various alcohol derivatives, inculding acetic acid. The plant was the first of its kind in eastern Europe, although Dr. Rosten built more than 50 alcohol plants of various types in other parts of the continent. He first came to Canada at the invitation of the Quebec government in 1938.

Dr. Rosten's views on the future of power alcohols were published in the April, 1944, Pacific PULP & PAPER INDUSTRY.

Pacific Mills Improvements

● Pacific Mills, Ltd., at Ocean Falls, B. C., is at present engaged in the installation of a new bleach plant and precipitator at a total cost of approximately $300,000.

When a representative of Pacific PULP & PAPER INDUSTRY visited the British Columbia mill town a few days ago the foundations were being laid, but Resident Manager R. H. R. Young stated that it was hoped to have both units in full operation by the early fall.

The bleach plant represents an innovation at the Pacific Mills plant because while provision for whitening some of the company's products was made some time ago this is the first time that standard bleached sulphite pulp has been entered in the production schedule.

The bleach plant will operate adjacent to the sulphite mill. It is a 36-ton two-stage full bleach unit using rubber lined vacuum washer to operate in chlorinated as well as bleach stock. Capacity will be 46 tons of semi-clean or semi-bleach stock. The machinery and equipment are being supplied by Pulp Bleaching Corp. and J. H. Galloway of Vancouver, B. C., is the contractor and builder.

The precipitator is being installed by Western Precipitation Co. of Canada and the job will cost in the neighborhood of $165,000. This electric unit is to be used to recover salt cake carryover in the stack washers. Similar equipment is commonly used in smelters to recover arsenic and light gases.

According to Pacific Mills officials, the precipitator represents the last word in design and will be one of the most modern setups on the coast when completed. It will have a liberal capacity, with improved design of louvres so the gas will be given a uniform discharge.

The idea is to insure that gases go into the two main channels uniformly and thus make for maximum efficiency. It will take care of the stack losses of a 150-ton kraft mill.

Marwell Construction Co. of Vancouver is contractor for this project.

Both the bleach plant and precipitator buildings are to be of reinforced concrete. The precipitator will be located between the recovery room and the sulphate digester building.

Barclay Now Vice-Pres. Of Powell River Co.

● William Barclay, who for several years has been general manager of Powell River Sales Co., which markets the products of Powell River Co., has been appointed vice president.

Southern Industry Starts Salvaging Million Cords of Blown-Down Pulpwood

LAST January, unusual climatic conditions which prevailed in the timbered area of East Texas caused severe and extensive damage to some 400,000 acres of timber. Ice formed on the trees in such quantities that many trees were split, broken or otherwise damaged. The situation was comparable to the great timber blowdown in New England a few years ago. It was estimated that a million cords of pulpwood and 100,000,000 feet of saw logs can be salvaged in the damaged areas.

Salvaging operations were just getting under way when a representative of Pacific PULP & PAPER INDUSTRY visited the area about six weeks ago. This work was being handled by a newly created unit, known as the Texas Timber Salvage Program, which is a joint undertaking of the Forest Service, Federal Surplus Commodity Corp., private owners, etc. Directing the project is Allen F. Miller, who was a Forest Service supervisor in that area. The program has its headquarters in Lufkin, Texas, home of the Southland Paper Co., which is central to the damaged area.

The plans of salvaging the ice-damaged timber has four parts: (1) Salvage by the large lumber companies of all damaged timber on their own lands, using prisoners of war as a source of labor; (2) Salvage by the National Forest of all damaged timber on Government land, by sale of all possible stumpage to pulp operators and sawmills; (3) Encourage small timber land owners, farmers, etc. to salvage their own damaged timber, and (4) Establishment of a timber salvage organization to purchase damaged stumpage from private timberland owners who are unable to process their own damaged timber. Prisoners of war should be used for this work.

One million cords of pulpwood can be salvaged from ice-damaged timber in Angelina, Nacogdoches, Panola, Sabine, San Augustine and Shelby Counties. The area of salvagable timber covers approximately 400,000 acres of land out of a gross area of over 2,000,000 acres in the five counties. Approximately damaged and salvagable acreage owned by various large landholders are as follows:

	No. of Acres
Frost Lumber Industries	17,000
Angelina County Lumber Company	40,000
Southern Pine Lumber Company	10,000
Temple Lumber Company	10,000
Hunt Interests	15,000
Bridges Interests	15,000
Hayters Interests	15,000
Davis Interests	6,000
Southwestern Settlement & Dev. Co.	20,000
U. S. Forest Service	100,000
Total Large Holders	248,000
Small Landholders (estimate)	152,000
Total estimated salvage area	400,000

This is not a complete list of large or small land owners.

A labor survey of the damaged area showed that there was not sufficient manpower available in the territory to salvage any appreciable amount of timber and so war prisoners were obtained to do the salvage work.

The Program itself expected to operate five or six camps employing some 2300 prisoners, and private operators expected to operate about four salvage camps employing some 1800 prisoners. The program had purchased and expected to use six Disston power saws in various phases of the salvage work. Originally it was planned to rush the salvage operations so as to get cleaned up by August so that the trees would not be further damaged by insects. But the very wet spring somewhat minimized the insect hazard and so salvage operations likely will continue up to April 1, 1945.

The Program will sell the wood to sawmills and pulp mills. The logs will be hauled by truck by the firms which buy them. The maximum truck haul will be about 25 miles. Logs will be bunched in the woods. The damage is spotted. Nowhere are all the trees down. So the operation will be on what re-

TYPICAL SCENE IN TEXAS PULPWOOD DAMAGE AREA:
This photo shows the Dwight Campbell farm, Shulby County, Texas. County Agent John Mossberg (left) discussing salvage with Dwight Campbell (right). It will be possible to salvage 3,000 cords in this area.

sembles a selective basis. Truck loads do not exceed 2500 feet for logs and two to two and a half cords of pulpwood. The trees to be salvaged will be marked by the Program's foresters. The recovery is expected to average three to five cords of pulpwood per acre. Logs will be cut down to 4-inch pulpwood. None of the slash is burned.

While experience so far apparently indicates that war prisoner labor is inefficient, still it helps out in this period of acute labor shortage.

ANOTHER SALVAGE SCENE:

This photo shows about half a stand on the ground. In the picture are M. H. Collett, assistant to James L. Madden, Deputy Director of the Paper Division, War Production Board, in charge of pulpwood production; Paul Hursey, Angelina County Co., Keltys, Texas, and Allen F. Miller, Project Supervisor, Texas Timber Salvage Program, Lufkin, Texas.

Problems of Prisoner-of-War Labor; Army, Unions and Officials Restrict Use

● War Department information indicates that there are eighty-two prisoners-of-war camps in the United States including base and side camps from which prisoners are being used to cut pulpwood. The Army estimates that 9,000 prisoners are assigned to this work and has indicated a desire to increase the number to 16,000 if possible. Most of those working are in the South with actual production running from four-tenths of a cord and up per man-day.

The 9,000 include both effectives and non-effectives; and it is understood that the Army holds back about fifteen per cent for camp duty. Non-commissioned officers do not work nor do the interpreters so the effective strength is considerably less than one hundred per cent.

War Production Board and forestry officials are endeavoring to work out ways and means to increase the efficiency of these workers and to improve the system since present costs are considerably out of line.

A slight increase of pulpwood production has been achieved in the South through use of these prisoners. Incentive pay is permitted under certain conditions.

More prisoners are going into operations in New England, New York and other northern operations, but opposition of unions as well as Army restrictions, based on dangers in big logging operations, has made it impossible to put any to work in the Far West.

Canadians Use 5,000

More than 5,000 German prisoners are employed in Canadian wood-cutting projects in Ontario, Alberta and Manitoba. The German government officially made known its desire that this be done, instead of keeping the men idle behind barbed wire.

Many of the Germans were supplied with a Germant translation of "The Woodcutter's Handbook," by A. Koroleff, available from the Department of Labor in Ottawa.

James Killen, labor advisor of the Paper Division, WPB, who formerly worked in western pulp mills, recently told the pulpwood industry advisory committee of the WPB that opposition of unions to use of prisoners of war has stemmed from a fear that such labor will be used to disturb the amicable relations and the collective bargaining practices that have been built up in the paper industry and have contributed to the welfare of the industry as a whole. He asserted that the lumber industry has used this source of labor as an "anti-union weapon." If, however, the industry has exhausted every source of free labor, and WMC will so certify, union officials have indicated that objections will be withdrawn. Mr. Killen pointed out that exploration of every source would include a bona fide offer to pay wages as high as those permitted by WLB, that is 50 cents an hour or equivalent piece rate in the South. If free labor can be recruited at that permitted wage rate, it must be employed at that rate before the industry can justifiably expect union consent to the use of prisoners. The industry advisory committee went on record that in their opinion this policy was sound and fair. Although the cost of production is actually increased through the use of prisoners of war, that fact is not generally understood, Mr. Killen observed.

Committee members and WPB regional representatives stated that industry would much prefer to employ free labor but recruitment has been impossible.

W. Bardsley (War Manpower Commission) stated that the WMC has ordinarily disapproved the use of prisoners of war if a union contract is in existence and the union objects. Until an employer has done everything possible in the areas of wages, working conditions, and manpower utilization to attract free labor, the WMC considers that prisoners of war should not be used. In some localities, improved housing and transportation facilities for free labor are also recommended before the use of prisoners of war is contemplated.

Up to February 1, the Army would not permit use of prisoners in logging and this kept them out of the woods in the West, where the pulp and paper industry uses logs instead of cordwood.

But limitations on prisoner labor make such employment difficult. Employers must provide suitable camp facilities where there are no prison camps in the vicinity, although guards will be provided by the Army. Such maps cannot be approved for groups of less than 200 men.

But the list of jobs which prisoners cannot do is almost prohibitive to employment in big tree logging in the West:

"Prisoners . . . may not be used in certain hazardous activities such as handling explosives, high climbing, rigging, aerial cable operations, swamp logging, stream driving, booming, or other operations which present a hazard of drowning or of wet clothing dangerous to health; top felling or felling from platforms more than two feet high, felling or bucking on excessively steep slopes, power skidding and loading, broadcast slash burning, power machine operations including feeding saws, planers and other machines in mills. All prisoners are to be excluded from the woods during periods of critical fire hazard."

Harold Boeschenstein, acting director of the Forest Products Bureau, and Rex Hovey and James L. Madden of the Paper Division have been most energetic

Southern Industry Starts Salvaging Million Cords of Blown-Down Pulpwood

LAST January, unusual climatic conditions which prevailed in the timbered area of East Texas caused severe and extensive damage to some 400,000 acres of timber. Ice formed on the trees in such quantities that many trees were split, broken or otherwise damaged. The situation was comparable to the great timber blowdown in New England a few years ago. It was estimated that a million cords of pulpwood and 100,000,000 feet of saw logs can be salvaged in the damaged areas.

Salvaging operations were just getting under way when a representative of Pacific PULP & PAPER INDUSTRY visited the area about six weeks ago. This work was being handled by a newly created unit, known as the Texas Timber Salvage Program, which is a joint undertaking of the Forest Service, Federal Surplus Commodity Corp., private owners, etc. Directing the project is Allen F. Miller, who was a Forest Service supervisor in that area. The program has its headquarters in Lufkin, Texas, home of the Southland Paper Co., which is central to the damaged area.

The plans of salvaging the ice-damaged timber has four parts: (1) Salvage by the large lumber companies of all damaged timber on their own lands, using prisoners of war as a source of labor; (2) Salvage by the National Forest of all damaged timber on Government land, by sale of all possible stumpage to pulp operators and sawmills; (3) Encourage small timber land owners, farmers, etc. to salvage their own damaged timber, and (4) Establishment of a timber salvage organization to purchase damaged stumpage from private timberland owners who are unable to process their own damaged timber. Prisoners of war should be used for this work.

One million cords of pulpwood can be salvaged from ice-damaged timber in Angelina, Nacogdoches, Panola, Sabine, San Augustine and Shelby Counties. The area of salvagable timber covers approximately 400,000 acres of land out of a gross area of over 2,000,000 acres in the five counties. Approximately damaged and salvagable acreage owned by various large landholders are as follows:

	No. of Acres
Frost Lumber Industries	17,000
Angelina County Lumber Company	40,000
Southern Pine Lumber Company	10,000
Temple Lumber Company	10,000
Hunt Interests	15,000
Bridges Interests	15,000
Hayters Interests	15,000
Davis Interests	6,000
Southwestern Settlement & Dev. Co.	20,000
U. S. Forest Service	100,000
Total Large Holders	248,000
Small Landholders (estimate)	152,000
Total estimated salvage area	400,000

This is not a complete list of large or small land owners.

A labor survey of the damaged area showed that there was not sufficient manpower available in the territory to salvage any appreciable amount of timber and so war prisoners were obtained to do the salvage work.

The Program itself expected to operate five or six camps employing some 2300 prisoners, and private operators expected to operate about four salvage camps employing some 1800 prisoners. The program had purchased and expected to use six Disston power saws in various phases of the salvage work. Originally it was planned to rush the salvage operations so as to get cleaned up by August so that the trees would not be further damaged by insects. But the very wet spring somewhat minimized the insect hazard and so salvage operations likely will continue up to April 1, 1945.

The Program will sell the wood to sawmills and pulp mills. The logs will be hauled by truck by the firms which buy them. The maximum truck haul will be about 25 miles. Logs will be bunched in the woods. The damage is spotted. Nowhere are all the trees down. So the operation will be on what re-

TYPICAL SCENE IN TEXAS PULPWOOD DAMAGE AREA:
This photo shows the Dwight Campbell farm, Shulby County, Texas. County Agent John Mossberg (left) discussing salvage with Dwight Campbell (right). It will be possible to salvage 3,000 cords in this area.

sembles a selective basis. Truck loads do not exceed 2500 feet for logs and two to two and a half cords of pulpwood. The trees to be salvaged will be marked by the Program's foresters. The recovery is expected to average three to five cords of pulpwood per acre. Logs will be cut down to 4-inch pulpwood. None of the slash is burned.

While experience so far apparently indicates that war prisoner labor is inefficient, still it helps out in this period of acute labor shortage.

ANOTHER SALVAGE SCENE:

This photo shows about half a stand on the ground. In the picture are M. H. Collett, assistant to James L. Madden, Deputy Director of the Paper Division, War Production Board, in charge of pulpwood production; Paul Hursey, Angelina County Co., Keltys, Texas, and Allen F. Miller, Project Supervisor, Texas Timber Salvage Program, Lufkin, Texas.

Problems of Prisoner-of-War Labor; Army, Unions and Officials Restrict Use

● War Department information indicates that there are eighty-two prisoners-of-war camps in the United States including base and side camps from which prisoners are being used to cut pulpwood. The Army estimates that 9,000 prisoners are assigned to this work and has indicated a desire to increase the number to 16,000 if possible. Most of those working are in the South with actual production running from four-tenths of a cord and up per man-day.

The 9,000 include both effectives and non-effectives; and it is understood that the Army holds back about fifteen per cent for camp duty. Non-commissioned officers do not work nor do the interpreters so the effective strength is considerably less than one hundred per cent.

War Production Board and forestry officials are endeavoring to work out ways and means to increase the efficiency of these workers and to improve the system since present costs are considerably out of line.

A slight increase of pulpwood production has been achieved in the South through use of these prisoners. Incentive pay is permitted under certain conditions.

More prisoners are going into operations in New England, New York and other northern operations, but opposition of unions as well as Army restrictions, based on dangers in big logging operations, has made it impossible to put any to work in the Far West.

Canadians Use 5,000

More than 5,000 German prisoners are employed in Canadian wood-cutting projects in Ontario, Alberta and Manitoba. The German government officially made known its desire that this be done, instead of keeping the men idle behind barbed wire.

Many of the Germans were supplied with a Germant translation of "The Woodcutter's Handbook," by A. Koroleff, available from the Department of Labor in Ottawa.

James Killen, labor advisor of the Paper Division, WPB, who formerly worked in western pulp mills, recently told the pulpwood industry advisory committee of the WPB that opposition of unions to use of prisoners of war has stemmed from a fear that such labor will be used to disturb the amicable relations and the collective bargaining practices that have been built up in the paper industry and have contributed to the welfare of the industry as a whole. He asserted that the lumber industry has used this source of labor as an "anti-union weapon." If, however, the industry has exhausted every source of free labor, and WMC will so certify, union officials have indicated that objections will be withdrawn. Mr. Killen pointed out that exploration of every source would include a bona fide offer to pay wages as high as those permitted by WLB, that is 50 cents an hour or equivalent piece rate in the South. If free labor can be recruited at that permitted wage rate, it must be employed at that rate before the industry can justifiably expect union consent to the use of prisoners. The industry advisory committee went on record that in their opinion this policy was sound and fair. Although the cost of production is actually increased through the use of prisoners of war, that fact is not generally understood, Mr. Killen observed.

Committee members and WPB regional representatives stated that industry would much prefer to employ free labor but recruitment has been impossible.

W. Bardsley (War Manpower Commission) stated that the WMC has ordinarily disapproved the use of prisoners of war if a union contract is in existence and the union objects. Until an employer has done everything possible in the areas of wages, working conditions, and manpower utilization to attract free labor, the WMC considers that prisoners of war should not be used. In some localities, improved housing and transportation facilities for free labor are also recommended before the use of prisoners of war is contemplated.

Up to February 1, the Army would not permit use of prisoners in logging and this kept them out of the woods in the West, where the pulp and paper industry uses logs instead of cordwood.

But limitations on prisoner labor make such employment difficult. Employers must provide suitable camp facilities where there are no prison camps in the vicinity, although guards will be provided by the Army. Such maps cannot be approved for groups of less than 200 men.

But the list of jobs which prisoners cannot do is almost prohibitive to employment in big tree logging in the West:

"Prisoners . . . may not be used in certain hazardous activities such as handling explosives, high climbing, rigging, aerial cable operations, swamp logging, stream driving, booming, or other operations which present a hazard of drowning or of wet clothing dangerous to health; top felling or felling from platforms more than two feet high, felling or bucking on excessively steep slopes, power skidding and loading, broadcast slash burning, power machine operations including feeding saws, planers and other machines in mills. All prisoners are to be excluded from the woods during periods of critical fire hazard."

Harold Boeschenstein, acting director of the Forest Products Bureau, and Rex Hovey and James L. Madden of the Paper Division have been most energetic

and active in trying to place prison labor in camps wherever possible to get out more critically needed pulpwood.

Prisoners in the South

Something like 5,000 war prisoners—all Germans—are now engaged in southern woods operations. This source of labor has been a big help this summer in maintaining needed supply of wood for pulp mills and sawmills. Camps manned with German prisoners are operating all across the south from Texas to Georgia. And new camps are being opened.

In some parts of the south operators report rather satisfactory results with war prisoners. In others the results have not been so good. A definite amount of work has been set up that each prisoner must do or else he will have to go back to the compound. Each man must produce a cord of pulpwood per day. A cord and a half is said to be about the average day's production per man, with some able to cut two cords.

In some operations when the cord has been cut the prisoner is free to go back to camp and spend the rest of the day at ease. Some energetic men are getting back to camp at 2:30 or 3 o'clock. Some operators have added other incentives to get good production, such as taking good workers to movies or swimming.

Even if the men produce the cord per day, the war prisoner labor is not considered cheap. The man is paid 80 cents per day, but other charges involved make up about another 80 cents.

The men are worked in crews of up to about thirty-three men. The men are used almost entirely in cutting timber. A thirty-three-man crew will consist of ten 3-man saw crews, a filer, an interpreter, and a sergeant major.

The men cannot be used on trucks or tractors, which are considered hazardous operations. Under the Geneva treaty prisoners cannot be used on hazardous work. The men can and are being used to load and unload cars.

It is stated that many men prefer to work in the camps rather than stay in the compounds. They prefer wood cutting to agricultural work.

Many of them are said not to be interested in the 80 cents per day pay because they believe that Germany will win the war and that our money won't have any value anyhow, and that when they get home they will have plenty of funds.

Most of the prisoners were taken in the North African campaign.

The men are in custody of the army, which handles the feeding. A few have escaped, but most have been quickly recaptured and sent to the compounds.

Application for men has to be made through the U. S. Employment Service, which makes a study and examination of the firm asking for the men. If a favorable report is made the men will eventually be forthcoming through the Army Fourth Service Command.

Norman Wilson Warns of Postwar Financing

● Industry must adjust its financial problems now to prevent business failure and widespread unemployment when war contracts are cancelled, warns Norman W. Wilson, chairman of the corporation peacetime planning committee of the National Association of Manufacturers and president of Hammermill Paper Co.

"A high level of employment after war production falls off will depend in a large measure upon the success with which postwar financing problems are met," he said in a "Guide to Postwar Financial Planning for Manufacturers."

Preceding issues of this series explored problems of internal organization, sales planning, product development and cost study.

"Hundreds of companies have an unfounded sense of security from reports about the condition of other businesses, and apparently are not even aware of coming problems which threaten their very existence," Mr. Wilson emphasized.

"Quoting statistics to the manufacturer who is an exception is like telling a sick man about the general health of the community and will not cure his own difficulty," he continued. "Jobs, incomes and even the perpetauation of our competitive business system depend to a substantial degree on whether individual companies can solve the financial problems involved in conversion of peacetime production."

Mr. Wilson explained that the guide was designed especially for those companies which will have heavy expenses in changing over to peacetime production.

"The problems are specially difficult for small companies which are not staffed with experts to deal with finance. They cannot easily resort to public financing because costs and government red tape are well-nigh insurmountable barriers for any but large companies seeking huge sums. Furthermore, small companies which lack a national reputation could not be sure of public acceptance of their securities if they were offered."

NORMAN W. WILSON, President of Hammermill Paper Co. "High level of employment depends largely on how financing problems are met."

C. D. Reis Covers Mills For General Electric Co.

● C. D. Ries, recently with the General Electric Supply Corp., in Seattle, is now in the sales department of the Seattle office, Industrial Division, General Electric Co.

Mr. Ries is handling general industrial accounts and will be responsible, particularly for pulp and paper mill electrical applications.

Seaman Opens Office

● Stewart E. Seaman, formerly dircetor of sales for Rayonier Incorporated, has announced the opening of his own pulp sales office at 122 East 42nd St. (Suite 3201), New York 17, New York. He had been with Rayonier for about 14 years.

Pulpwood Receipts Still Below Requirements

● In order to meet the increased demands put upon the United States paper and paperboard industry still further imporvement in pulpwood receipts must be obtained, according to James L. Madden, Deputy Director of WPB's Paper Division.

"Although receitps of pulpwood in May were 31% higher than a year ago," he said, "it must be remembered that receipts during May, 1943, were abnormally low. In addition, in the Northeast, it must be taken into account that, because of depleted mill inventories, there has been an accelerated movement of rough wood from the forests to the mills without a corresponding increase in current pulpwood production in the woods."

The record in rough cords (560 feet per cord) of receipts of domestically cut pulpwood in United States by regions (excluding imports) follows:

	May, 1944
Appalachian	154,703
Northeast	106,370
Lake States	84,314
South	634,883
Pacific Northwest	236,207
	1,216,477

Imports of pulpwood by U. S. mills were distributed as follows:

	May, 1944
Appalachian	300
Northeast	38,853
Lake States	17,907
Pacific Northwest	10,641
	67,701

Sidney Roofing & Paper Co. Expansion

● Plans for the erection of a new plant to cost about $75,000 by the Sidney Roofing & Paper Co., are announced by Managing Director Logan Mayhew.

The company has obtained a permit for rock blasting and a concrete outdoor platform has been taken out as foundation for the new plant. Actual construction of the plant, involving the installation of new chemical processes for the handling of pulp, may not begin until after the war.

Barton, New President of Superintendents, Discusses Postwar Labor Problems

● A big problem for some time to come in the pulp and paper industry will be labor, says Raymond L. Barton, the newly elected president of the American Pulp & Paper Mill Supts. Assn., Inc., in a letter to Pacific PULP & PAPER INDUSTRY.

Mr. Barton, who is also general superintendent of the Michigan Paper Co., Plainwell, Mich., discussed labor, equipment and other postwar problems in his communication.

He expressed pride in the work being done by the Pacific Coast Division of the Superintendents Association and said:

"We certainly intend after the war is over to make every effort to take steps to show the members of this division that we appreciate all that they have done and are doing."

It is believed Mr. Barton may have had in mind the popular sentiment favoring the holding of the first postwar convention of the APPMSA on the Pacific Coast. A far western convention was contemplated when the United States entered the war and made it impossible.

Regarding the problems of labor that will face superintendents everywhere, he said:

"These problems will be readjustment in jobs with the return of service men, lack of experienced or trained men due to being unable to obtain a sufficient number of young men to train during the war period, then we have the problem of replacing the many over-age men that are only staying in the service through their loyalty and due to lack of younger trained men to replace them.

"It also appears that we will have a shortage of raw materials for some time to come including certain grades of pulps as well as old paper stock, these being also due partly to the tight labor situation.

"Also we are going to have the problem of getting our plants back in proper shape as far as repairs are concerned to make up for the long period of time that we have been unable to obtain repair parts and enough labor and down time to do the necessary repair jobs. In addition much of our present equipment has got to be replaced with new equipment and some operating methods have to be changed if we are to make paper of satisfactory quality and keep our operating costs down."

Mr. Barton's Career

Mr. Barton's election to the presidency of the superintendents was reported in the June issue (page 12) of Pacific PULP & PAPER INDUSTRY.

He has had a career in both the New England and Michigan branches of the industry. He was born in Groveton, New Hampshire, October 7, 1900. His first day of work in a paper mill was at the Hall and Richter Paper Co., Northumberland, New Hampshire, during the summer of 1916 when he was 15 years old. He also worked at this mill during the summer of 1917 and during both years worked as a beater helper and as fourth hand on the paper machine.

On January 1, 1920, Mr. Barton went to work for the Groveton Paper Co., Groveton, N. H., as laboratory assistant. In 1926 he was promoted to chief chemist which position he held until 1930, when he resigned to accept a position as chief chemist for the Michigan Paper Co., Plainwell, Mich. In 1936 he was promoted to general superintendent.

Mr. Barton attended the University of Maine. He has been a member of the TAPPI since 1931 and was admitted to the Superintendents Association in 1936.

RAYMOND L. BARTON (left), new President of the Superintendents Association, and ROBERT L. EMINGER, who retired after 20 years as Secretary-Treasurer of the organization.

Bob Eminger's Farewell Message

● In a farewell message to Pacific PULP & PAPER INDUSTRY in his capacity as secretary-treasurer of the American Pulp & Paper Mill Superintendents Association, Robert L. "Bob" Eminger predicted that his organization will take a leading role in future years in developing new men, new products and new equipment in the industry.

"The future of the association should hold many new and worthwhile activities, many of which will be the further development of the new uses of pulp and paper which World War II has brought about as substitutes for other scarce materials used in the war.

"The superintendents' job will be along the lines of production of these new products as well as the work of training the new generation of pulp and paper makers.

"New ideas and improvement of materials and equipment will be another project in which the association will have a definite part in connection with the Allied Industries who are now permitted to become affiliates of the organization."

Regarding his own "postwar planning," Bob wrote that these would be less strenuous activities with rest and let-up from the demands of business. He and Mrs. Eminger will continue to reside in Miamisburg, O., where he was born 70 years ago.

He will stay on the job several weeks getting out another Superintendents Year Book, after which his successor, George W. Craigie, will open new headquarters in New York.

Mr. Eminger was elected secretary at the fifth annual meeting of the association in Dayton, O., in 1924. He continued his duties as assistant to Herbert W. Server, superintendent of Miami Paper Co. at West Carrollton, O., until 1926 when Mr. Eminger was elected full time secretary of the association. In 1928, he was elected secretary-treasurer, succeeding Peter J. Massey, who had held the post since the founding in 1919.

Mr. Eminger sent Pacific PULP & PAPER INDUSTRY this report on the growth of the association:

The first membership report I made out for the board of trustees on June 5, 1925, shows 468 members. Sixty-five new members were received during the years.

"My reports for other years:

Year	Enrolled	New
1926	464	70
1927	520	78
1928	543	50
1929	589	62
1930	650	88
1931	680	74
1932	640	32
1933	610	19
1934	611	48
1935	572	21
1936	581	52
1937	668	103
1938	743	110
1939	780	72
1940	807	60
1941	838	74a
1942	859	63b
1943	876	47c
1944*	934	86c

a Includes 3 reinstatements and 11 Honorary Members.
b Includes 2 reinstatements.
c Includes 1 reinstatement.
*Eleven Months—June 1, 1943, to April 30, 1944."

Hawley and Crown Mills Report On Employing Vets

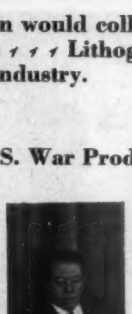
● John Ream, personnel manager at the West Linn, Ore., mill of Crown Zellerbach Corp., reported on placement of returning veterans at his mill at a recent meeting organized by the U. S. Employment Service. The mill at West Linn has 229 men in service, with 110 of them holding leaves of absence which will entitle them to their former jobs. The other veterans will be given seniority rights. Mr. Ream stated company has made a survey to determine the number of jobs in which handicapped men may be placed, and plans a training program for re-employment of ex-servicemen.

Charles Fox, personnel manager for Hawley Pulp & Paper Co., Oregon City, said that company's plans paralleled those of the West Linn Crown mill. He explained all who left to enter the service had been granted leaves of absence, placing his mill's total at 208.

Threat of Further Paper Restrictions Hinges on How Much South Can Produce

U. S. business and distribution would collapse if use of paper was reduced to the low levels now in effect in Britain ✓ ✓ ✓ Lithographers are given intimate picture of problems facing pulp and paper industry.

By REX W. HOVEY*
Director, Paper Division, U. S. War Production Board


Rex W. Hovey

● The problem facing the paper industry is no different from the probems that have faced a good many industries. As Donald Nelson indicated in February, the pulp and paper situation is one of the most critical we have. As the war goes on, as the automobile plants, as the airplane factories, as all other equipment for war purposes gets under way, we have to supply more and more paper and paperboard. However, in the face of this additional requirement, we are faced with an increasing shortage of manpower and of equipment of all kinds. Lumber is an equally critical industry and at the present time is under complete allocation, and yet lumber is in direct competition with pulpwood. The labor and the equipment is the same labor and the same type of equipment that produces pulpwood.

Mr. Harold Boeschenstein, when he took over the Forest Products Bureau, was held responsible for pulpwood, paper, paperboard, lumber, publishing and printing. He immediately attacked the problem from the angle of getting more and not allocating less. He reorganized the Bureau entirely on this basis. He recognized at once that the industry would not have the manpower and that they would not have the equipment that they would like to have. He recognized that we must acquire new methods of producing pulpwood and lumber; that we must acquire labor in the collection of waste; and that we must have conservation of our products so as to carry on the economy of the industry.

In the Paper Division organization, which I think you will be interested in, we have Henry G. Boon, an officer of the Kimberly-Clark Corp., in charge of their production. James L. Madden, who is in charge of our pulpwood products, is vice-president of Hollingsworth & Whitney. Lyman Beeman, of St. Regis, is an officer of the St. Regis Paper Co., in charge of their manufacturing. Roth F. Herrlinger is in charge of our converted products branch and is president of his company. H. O. Nichols, who is in charge of our coarse paper division, is eastern representative for the Crown Zellerbach Corp. William H. Kenety, who is in charge of our fine paper branch, is vice-president of the Fitchburg Paper Company.

These men are all production-minded. They are not allocation-minded. I think some of the factors that will interest you in the problem that is ahead of us are:

Pulpwood Problem

No. 1. Pulpwood. I think you can safely say that pulpwood has gone to war. Pulpwood is producing pulp for nitration, rayon pulp for textiles, and 65 per cent of the textiles in the coutnry are under allocation for direct or indirect military purposes. The civilians have 35 per cent or the remainder. Pulpwood is producing pulp and paper for ordnance in uses that we cannot discuss. A substantial part of our pulpwood production is going into plastics. Practically half of our pulpwood production is going into containers for V boxes and shipping containers for overseas shipment. The remaining half, or a little more than half of our total pulpwood production is going into paper.

It is important to consider our economy and by our economy I mean the economy of the United States as compared to England and other European countries. We have a nation-wide distribution. That calls for advertising. It calls for acquainting the public with what you have and what you are manufacturing and with what use it will be. Our business systems are based upon paper and paperboard and on mechanical equipment. Our health methods and our health laws are very substantial users of paper and paperboard. We have a news distribution system that is far ahead of any other country in the world.

If you hear anybody tell you that there is no reason we should not go down to the economy of paper and paperboard of England, then your answer is that this country would collapse in its business and distribution methods if we went down to the 18 per cent publishing and printing level of England and to 27 per cent of the 1939 container situation. Our products would not move. Our business systems could not operate. The Army and the Navy are fully aware of this problem. They are cooperating with the Paper Division and the Container Division and the Lumber Division in every way possible.

One of our most immediate problems—it may appear to you that it is a little removed from your particular work—is the production of pulpwood in the South. Ninety-three per cent of all the estimated requirements of containers for the second quarter are AA-3 priority ratings or higher. Sixty-nine per cent of all the container requirements for the second quarter are AA2-X or higher. If we cannot meet these container requirements from the southern kraft ouput, which means southern kraft pulpwood, then containers will have to reach into the unbleached sulphite capacity of the rest of the country, and if they reach into that capacity it means we will reduce the capacity of paper. The importance of pulpwood production in the southern area is, therefore, quite obvious. You have probably heard a lot of talk about it and a lot of publicity about it, but I think you can readily understand that if you do not produce the strong southern kraft for containers, for waterproof paper, for multiwall bags, for industrial wrapping, then we will have to take pulp from somewhere else.

The paper industry is sometimes misunderstood in relation to what has happened. There have been very substantial cuts in certain papers of the American paper industry. In the second quarter the American newsprint production is off 25 per cent from 1942. The groundwood printing industry paper production is off 11.8. The book industry is off 19. The fine paper production is off 15.

On the other hand, multiwall bags are up 50 per cent, sanitary papers are up 35 per cent, building papers are up 18 per cent, and so on down the line.

The paper industry has found its own relative essentiality level. We can do with a little less newsprint. We can do with a little less of our own types of paper that we are talking about here. We can cut our basic weights and we can conserve the use of paper, but in doing so we have maintained the overall economy of your industry and the general publishing and printing industry and of the business systems of the country, and yet have been able to supply primarily the requirements

*Address before Lithographers National Assn., Chicago, May 9, 1944.

HOVEY WARNS PURCHASING AGENTS

Addressing the National Association of Purchasing Agents at the Waldorf-Astoria in New York, Rex Hovey, director of the Paper Division, WPB, pointed out that there are no pulpwood inventories in the South, and in the Northeast we will end the year with inventories running from zero to three months' supply of pulpwood. In normal times, mills in these regions carry an average invetnory of twelve to fifteen months' supply.

"Despite the use of 16,000 war prisoners to relieve the manpower shortage for turning out woodpulp, and recent efforts to step up the salvage of waste paper, we presently are at the bottom of the barrel with paper mills operating on a hand-to-mouth basis," Mr. Hovey said. "New WPB orders that will be out soon are going to limit drastically production of certain classes of paper," he continued. "They are necessary to take care of the Army's needs, and I am asking you not to compete with the Army."

Henry G. Boon, assistant director of the Paper Division, said that due to the lack of sufficient waste paper, kraft paper manufacturers and board mills were obliged to use increasing amounts of virgin sulphite pulp in order to meet production schedules for essential wrappings and packaging materials.

of the containers and the waterproof paper and packaging industry.

The problem ahead of this industry is to be careful of your paper. Conserve it as much as practical. You must do your part in conservation, in the collection of waste, and in pulpwood publicity programs. Approximately one-third of the pulpwood produced in this country and a little more than one-third in the southern area is produced by the farmer. The fact that we have received in the first quarter of this year some half million cords in excess of a year ago can be primarily attributed to farmer cooperation. The farmers turned out in the southern area and in the lake states and the northeast, and we can safely say that the gains in pulpwood production were by the voluntary mobilizing of the farmer.

Some figures of the production situation as it affects your own products should probably be of interest. In 1939 the production of paper and paperboard totaled 13,500,000 tons. In 1943 it was 17,000,000. In the overall paper and paperboard, 39 per cent in the first quarter of 1944 went to government agencies, including War, Navy and other military and defense plants, 33 per cent went to firms producing predominantly for the war economy, and only 28 per cent was used to meet purely civilian needs.

In our critical grades of paper we have waterproof paper, target paper, wet-strength map paper, photographic paper, blue print paper, tabulating cards, carbonizing paper, a condenser tissue under 100 per cent allocation, cable paper, electrical insulation paper, container board, armature paper and paperboard, multiwall bags, communication papers, ticker-tape paper, a paper without which the communication systems of the country and the War and Navy Departments could not operate, business papers as well as our newspapers. You could include in this list several hundred uses of paper without which we would have difficulty.

In the groundwood printing papers the production in the first quarter of 1944 was 8.7 per cent more than the average monthly production in 1939. However, it was off 11.8 per cent from a year ago. In the book paper industry the production for the first quarter was off 8 per cent as compared to 1939, and 19.8 per cent as compared to 1942. In the fine paper industry, the production was up 33 per cent over 1939, indicating the increased tempo of business, as you know, primarily concerned with the war effort. As compared to 1944 we have to cut back on the consumption of pulp by that industry and it was off 14 per cent from the first quarter.

The biggest problem facing us at the moment is pulpwood and that is primarily in the South. I mention that again because that impact, if we cannot get southern pulpwood production, will very directly affect you and all the rest of the pulp and paper industry. For the first quarter of 1944 our requirements of V boxes were 26,000,000. For the second quarter the requirements are estimated at—and when I say "estimated" they are the actual conservative requirements—32,000,000, and the outlook for the third quarter is 37,000,000.

To Employ 15,000 Prisoners

● Everything possible is being done to increase the production of pulpwood in the South. We have prisoners of war, two or three months ago about 6,000, currently between 8,000 and 9,000, and if everything goes well by August there will be 15,000 working in the southern area. We have mechanized equipment. The production per man per day in certain areas has gone up from one cord per man to three cords per man. It will take a little time to get this mechanized equipment operating throughout, but the companies are taking hold.

The truck situation is extremely critical, but the companies are taking old trucks and putting in truck repair depots, and the Army is cooperating in releasing some of their old equipment, and that in turn is being put into conditon to haul the pulpwood. Companies are putting in trained operators to organize their wood crews. As you know, in the southern areas the production of pulpwood has been largely with disorganized labor and is very rapidly becoming organized labor.

HAROLD BOESCHENSTEIN, Acting Director of the Forest Products Bureau of the U. S. War Production Board, chats with a Goddard College student during a lull in the pulpwood cutting contest held recently on the grounds of the Plainfield, Vt., school. Mr. Boeschenstein, addressing winners of the contest, conducted in four Northeastern states by the National Grange, appealed to the cutters and to other farmers to "give every day—every hour—you can spare to woodcutting." He pointed out that continued and rising production is "essential to victory."

The OPA have cooperated with us in pricing, realizing the importance of the production of pulpwood. At this point I should like to call to your attention that for your own good your should carefully review every month the reports of the Bureau of Commerce and the Forest Products Bureau, which report is entitled the "Pulp and Paper Industry Report." We are giving you all the facts and figures of our industry. You know as much about our wood receipts, our pulp products, our inventory situation as we do, and you have to use your own judgment in analyzing what lies ahead of us. I am reasonably confident that if the draft does not completely ruin us, if rain, which has practically ruined us for the month of April, does not continue, we will hit the bottom of this in the third quarter. I am confident that with the efforts of the companies, the War Producion Board, the War Manpower Commission, and of the industry in every way in the collection of waste paper and the conservation of paper, we will turn the corner. However, I must couple that forecast with the general war outlook. If the invasion is not successful at the beginnig, if the draft on the manpower is terrific, we are certainly headed for trouble.

I hope, however, that your group will realize your own responsibility in this program, that you will apply conservation methods in your use of paper, that you will cooperate in using papers that require less virgin pulp, and that above all you will lend your cooperation to the pulpwood campaign and the waste paper campaign.

Rayonier Gets More Logs

● Logging has commenced on a stand of about 20,000,000 feet of hemlock and spruce for Rayonier Incorporated on Charley Creek in the Grays Harbor, Wash., area.

This is one of a half dozen operations acquired and opened up for the Rayonier Grays Harbor division in the past two years. Several others have been opened up near the Port Angeles, Wash., mill.

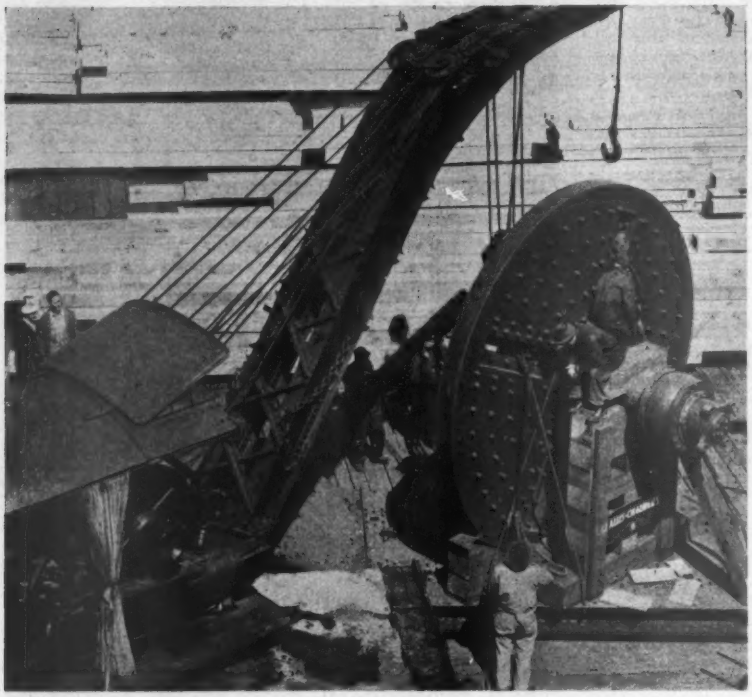
West Linn Over Top

● According to Clarence E. Bruner, resident manager of the West Linn, Ore., division of Crown Zellerbach Corporation, employes of that mill had exceeded their 5th war bond quota of $84,375 on June 22, one week after the campaign started. The campaign was carried on by A. R. Lindsley, treasury representative for the company; Tony Herbst, Clarence Jolly and Clarence Sheer.

Lithographers' Officers

At the 39th annual meeting of the Lithographers National Association in Chicago May 8-10, the following officers were elected: Maurice Saunders, chairman of the board; Louis Traung, president; George E. Loder, vice president; George C. Kindred, treasurer; W. Floyd Maxwell, secretary, and Percival D. Oviatt, general counsel.

Biggest Chipper in World at Weyerhaeuser Mill; Makes Possible Greater Pulp Yield From Wood



LARGEST CHIPPER IN THE WORLD arrives at Everett, Wash., mill, Pulp Division, Weyerhaeuser Timber Co. To gain a conception of the size of this chipper, compare it with the men who have climbed up on the arbor and others on the platform.

● The largest chipper disc ever manufactured has arrivved at Mill No. 2, Pulp Division, Weyerhaeuser Timber Co., Everett, Wash.

It is 175 inches in diameter and 10 inches thick. It replaces what previously was the largest chipper, one made over a year ago from scrap steel when priorities for new materials were more difficult to obtain.

The older disc was 171 inches in diameter and nine inches thick. It was made from salvaged 9/16 inch steel from the Tacoma Narrows Bridge, which collapsed in Puget Sound in a storm in 1941, and was made up in sections.

This new chipper, like the older one, will chip whole logs of up to at least 40 inches in diameter and of virtually any length. They came out of the hydraulic barking machine at this plant in lengths up to 26 feet.

By making is unnecessary to cut up the logs into cants, this giant chipper makes possible a considerably larger yield of pulp from available timber. When logs are cut up, much good wood is lost in saw kerf.

The importance of such savings is evident to every one in the industry in these days of wood shortage and manpower shortage. It will be just as important after the war, too, when wood still will be none too plentiful. It is estimated that the combination barker-chipper installation at Everett has increased pulp production per thousand feet of logs by about 20 per cent. Chipping of whole logs makes possible a considerable part of this saving.

Some leaders in the industry say that savings made by whole log chippers can be much greater than those made by the new hydraulic barking methods, but a combination of the two is generally favored.

Weighs 42 Tons

● The new chipper weighs 42 tons as shown in the picture (without motor), according to Russell J. LeRoux, plant manager. It is a one-piece steel forging made by Bethlehem Steel Corp., from a 103 ton ingot. The finishing was done by Allis-Chalmers.

The disc arrived in Everett on a special car and the Great Northern Railroad's large crane, shown in the picture assisted in the unloading.

The older disc will be retained as a spare part.

Instead of a synchronous motor, usually used for chippers, this big machine in Everett is driven with a General Electric 1,000 h.p. 240 r.p.m. wound rotor steel mill type of induction motor. This type was selected so as to use the flywheel effect of the disc to keep down the power peaks.

Nearly an hour would be required to bring the giant disc and motor rotor to a standstill unless some braking were used. The motor controller has been designed so that when the operator pushes the stop button, the power is put on the motor in reverse with a new and higher valve of resistance in the rotor circuit. Just before the stop, the contactors open and prevent reversing direction.

About 68 seconds is required for stopping or starting and the current is limited to 130 per cent of full load.

There is an ingenious feeding device, tipping the logs down to the chipper mouth in a long slanting chute.

Four knife pockets will accommodate knives 50 inches long, one inch thick and eight inches wide.

Scotland Is Heard From

● Reports and illustrations first published in this magazine have acquainted industry and government leaders in regions as far apart as Scotland, South America and New Zealand with the new hydraulic whole log barking methods developed by the Pulp Division, Weyerhaeuser Timber Co., at its Everett, Wash., mill.

One of the latest of these to have commented on the development is J. M. Chamberlain of A. N. G. Paterson Ltd., St. Rollox Sawmills and Box Works, 60-80 Tennant St., Glasgow C-4.

Hi-Jinks on Sept. 29

● Forty-five members and guests of the Paper Mill Men's Club, Los Angeles, met for luncheon at the Cabrillo Hotel, June 29, to listen to a thrilling story of air combat in the South Pacific, and to plan details of the annual Hi-Jinks on Sept. 29. A. A. Ernst, Everett Pulp & Paper Co., presided.

The yearly affair at which the PMMC usually entertains hundreds of people connected with the paper industry, is to be held at the Riviera Country Club. It will raise funds for underprivileged children.

G. N. "Gerry" Madigan, Johnson, Carvell & Murphy, general chairman, outlined the program and named his committee chairmen. Vice-chairman is **Louis Wanka,** S. C. Wilson Co. Chairmen named were:

Al C. Henschel, Johnson, Carvell & Murphy, finance; **W. B. O'Malley,** Hawley Pulp & Paper Co., Christmas Party funds; **F. G. Van Amberg,** Angeles Paper & Excelsior Products Co., program; **George Skleba,** Dixie Vortex Co., entertainment; **Neil B. Sinclair,** Sinclair Lang Co., reservations and invitations; **Frank R. Philbrook,** Graham Paper Co., golf; **G. S. Brenzel,** Los Angeles Paper Bag Co., sports and softball; **Lee W. Lamboy,** West Coast Coverage Co., door prizes.

Capt. Fuller, U.S.A., gave a dramatic account of air battles and the sinking of Japanese naval convoys.

Members voted unanimously to hold luncheon meetings through the summer.

Pacific Paperboard Fire

● A five-hour fire on July 3 destroyed the box plant of Pacific Paperboard Co., Longview, Wash. Six machines each, valued at $20,000 or more, were total losses and much stock was destroyed.

Coast Association Told It May Expect Further Restriction on Paper Boxes

AT THE PACIFIC COAST PAPER BOX MNFGRS. ASSN. two-day meeting in Los Angeles in June:

Top row (left to right): FRANK M. O'LEARY, Eureka Paper Box Co., Los Angeles, the new President of the Assn.; CHARLES RUBLE, Standard Paper Box Corp., Los Angeles, who represented the Folding Box Division and who later went to Washington to serve with the WPB; ARTHUR CARLSON, Pioneer Div., The Flintkote Co., Los Angeles, a round table speaker, and HAROLD S. FULLER, Bicknell & Fuller Paper Box Co., Boston, and Past President of the National Association.

Lower row (left to right): JOHN V. MANNERS, Paper Box Corp., Oakland, Calif., the retiring President of the Assn.; HAROLD H. WORTH, Los Angeles, Executive Secretary; and a group of Past Presidents with the new President, Mr. O'Leary, sixth from right, and Mr. Worth, eighth.

• The 30th annual business meeting of the Pacific Coast Paper Box Manufacturers' Assn., was held June 20-21 at the Santa Barbara (Calif.) Biltmore with approximately 60 members in attendance, plus about 40 wives and other guests. John V. Manners, head of Paper Box Corporation, Oakland, Calif., the association president, and Harold H. Worth, Los Angeles, executive secretary, conducted the sessions.

The annual election saw Frank M. O'Leary, Eureka Paper Box Co., Los Angeles, selected to succeed Mr. Manners. R. F. Scully, Puget Sound Paper Box Co., Seattle, was chosen vice president, and Wilson Field, Fleishhacker Paper Box Co., treasurer.

Heading up the executive committee for the folding box division were Morton Schmidt, Schmidt Lithograph Co., San Francisco; Tom Kennedy, Pacific Paper Board Co., Longview, Wash., and Charles Minsky, Acme Paper Box Co., Los Angeles. Representing the set-up box division were Payton Thompson, Portland Paper Box Corp., Portland, Ore.; O. E. Clark, O. E. Clark & Son Paper Box Factory, Los Angeles, and J. J. Thiebaut, Raison & Thiebaut Bros., San Francisco.

Harold S. Fuller, head of Bicknell & Fuller Paper Box Co., Boston, Mass., 1935-7 president, National Paper Box Manufacturers' Assn., represented Walter P. Miller, Philadelphia, current president and recently reelected, who was detained in Washington, D. C. Mr. Fuller spoke in behalf of the national set-up box interests.

William W. Fitzhugh, New York, president, Folding Paper Box Assn. of America was scheduled for an address, but he too was prevented from coming west because of business in the nation's capital. Speaking in his stead, on folding box matters, was Charles Ruble, president, Standard Paper Box Corp., Los Angeles, who left soon after for Washington, D. C., as a member of the Paperboard Division, War Production Board.

Report By Manners

In his report, Mr. Manners declared the members could be justly proud of their contribution to the war effort, in spite of the many restrictions and difficulties. He said the container industry of the country has produced approximately 20,000,000 V cases each month.

"This becomes tremendously important to the set-up and folding paper box industry, when we realize the tonnage of board consumed in these fiber cases is more than three times the amount used previously in regular corrugated cases for domestic purposes," he declared.

President Manners urged the convention to consider government orders and their effects as an important subject to discuss. "One of the most important is Order L 239, which limits the type and size of folding and set-up boxes which we can manufacture, and prohibits their use for certain purposes," he said. "If the supply of raw materials is as short in the second half of this year as the first, and the demand of our armed forces continues to increase, we can reasonably expect that this order will be revised to further restrict the use of folding and set-up boxes for other essential uses."

He referred to a parallel to Order L 317, recently amended. This order, while pertaining to shipping containers, will directly effect the manufacture of set-up and folding boxes inasmuch as it would be useless for the customer to purchase boxes if he had no containers in which to ship them.

Another order to which President Manners called members' attention was P 146 which establishes preference ratings in order to obtain shipping containers. The WPB has under consideration another amendment to this regulation or a companion order to include set-up and folding boxes.

The WPB expects to include folding and set-up boxes under this order for the purpose of obtaining end use data upon which to base allocation of box board. "This is what is being done in the container industry under P 146 and its companion order, M 290, which allocates the production of container board to the converters in accordance with their rating pattern established under P 146," he said.

A new order M 378 is about to be issued superseding Order M 241. This new order reduces the reserve production from 45 per cent under M 241 to 40 per cent. In addition, it changes the limitation on our inventories from the present 60 days under M 241 to 20 days or two carloads, whichever is greater.

Concluding, President Manners urged the members to give thought and consideration to reconversion. "Despite the fact

that we are still in a critical period of the war and a great deal is still dependent upon this industry for the successful prosecution of the war, it is only natural that we should give careful thought to this subject," he said.

Fuller's Address

Mr. Fuller came a long way across the country to address the convention but, in the unanimous opinion of all present, the information he brought regarding the "state of the industry" nationally, made the journey invaluable to delegates.

He spoke of three new committees recently established by the N.P.B.M.A. One is a government relations committee, headed by Vice President A. M. Bond. Purpose is to go over all government orders and interpret these for the members; to determine if the association can assist the government in carrying out the orders or, if these appear to work a hardship on the industry, to urge amendment. The committee is working closely with the WPB and OPA advisory committees.

An important activity of this committee has been to send out questionnaires asking complete figures on sales of individual concerns in the industry. Mr. Fuller pointed out that, because of stringent OPA ceilings there is a point of sales volume below which the industry would lose money. This is considered to be 80 per cent of present volume.

Because of governmental restrictions on tonnage, the sales trend is definitely downward, and by securing monthly reports from the industry, the committee can quickly determine when the danger line is approached, and thus be in position to seek relief from both WPB and OPA.

The second committee deals with postwar planning, and here again a questionnaire was sent out, this time however to large users of set-up boxes, a survey which included 22 industries either users or potential users. Mr. Fuller reported an enthusiastic response to this, from both individuals and associations.

The third is the advertising committee. This is sponsored by N.P.B.M.A., but not financed by it. Financing is undertaken by the "Master Craftsman" of the industry. Its purpose is to promote postwar sales on set-up boxes, to extend markets and generally to extol the virtues of set-up boxes.

Mr. Fuller also was a participant in the round table discussions, interpreting governmental regulations and restrictions for the members.

Another speaker was Arthur Carlson, Pioneer-Flintkote Co., Los Angeles, formerly in the sales division, now in charge of priorities, etc. He spoke on the Los Angeles waste paper drives, largely sponsored by Flintkote. "It was waste paper which largely kept the mills running," Mr. Carlson declared. "In spite of the problems of collection, 6,800 tons were gathered in this area during April, a record for the entire country."

Also one of the featured speakers was Arthur Ponsford, Southern California editor for Pacific PULP & PAPER INDUSTRY.

Meyerstein's Address

● J. C. Meyerstein, San Francisco, one of the founders and now legal advisor to the association, gave an address on purposes of the group. Declaring the keynote of the association through 30 years has been cooperation, Mr. Meyerstein declared:

"The advantage from the profit standpoint of working together had been recognized since 1910, and—with or without friendship—had been realized through price fixing and equitable allotment of business to which at that time there was locally no legal impediment—or so we thought; although, if the trend of judicial decision was then what it is now, price fixing and preferential customers' lists, even though limited to business wholly intra-state, would have been as dangerous then as now. But activity that cross state lines, then as now, was subject to regulatory federal statutes, and so an association such as ours would have been conceived in iniquity had its objectives been a direct impact on its members' balance sheets. What it could not lawfully do, it would not and did not try to do even obliquely. But then, as now, there were things that regardless of geography could be done lawfully to improve business relations. Even as now, there was no ban on tolerance, understanding and education."

Mr. Meyerstein stressed that in foreign relations of nations, as well as in business, there mut be a will and a wish for peaceful and cooperative relations over and above any written agreements.

Entertainment included the showing of a U. S. Navy-sponsored motion picture, "Packaging and Packing in the South Pacific."

Los Angeles members entertained in the Biltmore's main lounge; this was followed by a dinner and dancing. The annual golf tournament was arranged by Charles Hering.

The convention committee was composed of Will H. Kewell, Western Paper Box Co., Oakland; Roy E. Mullins, Independent Paper Box Co., Los Angeles, and Charles Ruble.

MAJOR GENE L. ARTH, for three years with the Los Angeles office, Everett Pulp & Paper Co., was killed in action April 22 while on a bombing mission over Germany. Enlisting in the Army Air Corps April 28, 1941, he was sent to the Aleutians and took part in the fighting there for seven months, being awarded the Air Medal for heroism. Returned to this country as an instructor, he later was sent overseas as commander of a fighter-bomber squadron. He had completed several missions over Germany before he was shot down. Maj. Arth was considered a man with a brilliant future in this industry.

NEWS OF *The Pulp and Paper Industry--*

25 Years Ago

American Pulp & Paper Mill Supts. Assn., first organized in Appleton, Wis., June 3-4, 1919. Fred C. Boyce, then general superintendent of Wausau Paper Mills, was leading organizer.

15 Years Ago

Canadian International Paper Co. enlarges capacity of its Kipawa mill on the Ottawa River from 75,000 to 100,000 tons of rayon sulphite pulp a year. A large proportion of the world's supply of rayon wood pulp was being produced in 1929 by the Kipawa mill, one of the original Riordon properties.

Maj. Oliver M. Porter resigned as secretary-treasurer of the American Paper & Pulp Assn., after nine years at that position, to become manager of the National Kraft Paper Mfgs. Assn., of which J. P. Hummel is president. Charles W. Boyce succeeded Maj. Porter as acting secretary-treasurer of the APPA.

Charles Ruble was elected president of the Pacific Coast Paper Box Mfgrs. Assn., and Hugh Peat was elected general secretary.

The Olympic Products Co. was organized by E. M. Mills, the Zellerbachs, J. H. Bloedel, William Boeing, Joseph Irving and others to construct a pulp and sawmill at Port Angeles, Wash.

10 Years Ago

Japanese imports of wood pulp from the United States were increased through the first half of 1934 to 83 per cent more than in 1933. Oscar Jorgenson, secretary of British Columbia Pulp & Paper Co., returns from tour of Japan with word that its industry has been thriving, while industry languished in other countries and that Japan had an "NRA" long before the U. S.

John H. Noble, of Pelham, N. Y., was appointed sales manager of Improved Paper Machinery Corp., Nashua, N. H., and Kenneth B. Hall, Portland, was appointed western representative.

REUNION IN PHILADELPHIA . . . A Story About a Modern Eastern Paperboard Plant

● This is a prosaic business announcement, with a peculiar human interest twist.

Just a few years ago, Robert E. ("Bob") Bundy and Bernard B. ("Bern") Altick were schoolmates at Lincoln High School in Seattle. Later they attended the University of Washington together; then their paths separated. Bob Bunday stayed in the "evergreen" Northwest corner of the United States, gradually forging ahead until he became resident manager of the Port Angeles, Wash., mill of Fibreboard Products Inc.

Bern Altick, after doing sales work for the same company in Seattle and Portland, gradually moved to the "sunny" Southwest corner of the United States to become assistant sales manager for the southern district of Fibreboard. Here he remained until sometime after Pearl Harbor when he went to Washington, D. C., on leave to serve on the War Production Board as deputy director of the Paperboard Division, one of the key posts in the industry set-up for the WPB.

Now, after several years of being separated, first by the length of the Pacific Coast and later by the breadth of the country, Bob Bundy and Bern Altick are together again. Last year Bob became vice president and general manager of Federal Container Co., a unit of Fibreboard Products Inc., located in West Philadelphia, and on Feb. 1 of this year Bern left his Washington post to become sales manager at Federal.

It was a grand reunion in Philadelphia for the Bundys and the Alticks for not only had the two men been class mates, but their wives had also gone to the same Lincoln High School. Another coincidence, each family has two children, the Bundys a daughter and son, and the Alticks two attractive young daughters.

Both families have taken apartments in Alden Park, a pleasant suburb of Germantown, nine miles out the famous old Philadelphia "Main Line" from the Federal plant. The wives run into Philadelphia for shopping trips and the husbands frequently meet them for dinner in town in which most of the conversations start out, "Do you remember — —?" There isn't much time for sport these days, but Alden Park has a nine-hole niblick and putter course which helps keep the men in tirm, although it is as Bob says, a

ROBERT E. BUNDY, Vice President and General Manager, Federal Container Co., Philadelphia.

"far cry" from the hunting, fishing and yachting of the Olympic Peninsula back in Washington. However, when normal times return the Schuylkill and Delaware rivers and Chesapeake Bay will afford "Commodore" Bundy and Fisherman Altick plenty of opportunity for yachting and fishing.

Bundy and Altick have been busy acclimating themselves to Eastern business conditions, which are considerably different than the problems of management on the Pacific Coast. In this they have occasional advice and assistance from D. H. Patterson, Jr., president of Fibreboard, who drops in on them periodically from San Francisco.

Fibreboard acquired the Federal plant back in 1928 and since then has made it one of the most modern, thoroughly equipped and efficiently operated producing units for corrugated shipping containers and sheets in the country. It goes without saying that its products are in urgent demand today for the Army and Navy, particularly for shell and ammunition boxes and for containers for the Navy Clothing Offices and Army Quartermasters. In one recent month over a third of the plant's output went to government and military services.

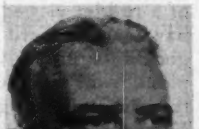
The War Production Board decides where the output goes—as is customary today. Some of the container sheets go to the Maryland Container Co., in nearby Baltimore, also a Fibreboard subsidiary. In production of containers, these two plants work as two meshed cogs in a single machine.

A large quantity of the boxes made at these plants go to a nationally known cork company which is now using its bottlecapping machinery to punch out deadly shells for our boys in Europe and the South Seas.

Equipment at Federal Container is electrically driven. One of the corrugators — the newer one — is a 76-inch Langston. The other is a 63-inch Swift. There are several box-making machines and other auxiliary equipment. Liner board and corrugating materials used at Federal comes from southern paper mills.

Just to return to the opening angle of this article for a moment . . . there must be something about Lincoln High School in Seattle which turns the thoughts of students toward the shipping container field. For in addition to Mr. Bundy and Mr. Altick, two other former Lincoln High students work for Fibreboard. They are George Langtry and "Happy" Marion, both in the Seattle sales office.

Another westerner has served as an executive at Federal until recently called into the service. He is Meredith Sweet, plant superintendent, now staff sergeant in the United States Army, who moved to Philadelphia from Fibreboard's plant in Antioch, Calif.



CHARLES E. MUELLER, new Sales Representative in New England for the BULKLEY, DUNTON PULP CO. whose appointment is announced by Fred Enders, President. Mr. Mueller will have headquarters in Bulkley, Dunton's main office, 295 Madison Avenue, New York. Before joining Bulkley, Dunton, "Bud" Mueller was for 20 years with Papermakers Chemical Department, Hercules Powder Co. In 1924 he became chief chemist of the Papermakers Chemical Corp., Kalamazoo, Mich., which in 1932 merged with Hercules Powder Co. Previously he had been chief chemist with Kalamazoo Vegetable Parchment Co. At the U. of Michigan he studied papermaking under Ralph Hayward, now president of KVP, and later studied at Maine U.

CROWN ZELLERBACH MILL MAKES RUDDERS

Big 17-Ton Assemblies Manufactured in Shop For Victory Ships and Tankers

325 Employes of Camas, Wash., Paper Mill's Machine Shop are turning out four of the huge steering assemblies every week, as well as many other products—will speed up rudder output to five per week.

Foreground: Camas hand grinders are bringing down the baffle plate tab welding on a tanker rudder. Background: A Victory ship rudder subjected to air and bubble test.

A RUDDER on a 10,000-ton Victory ship, or a tanker of like size, appears to be a trifling part of the whole as the ship steams away, or even at the launching of such a vessel. By comparison, the rudder is insignificant. But not so a rudder by itself in the plant where it is built.

More than 325 employes in the machine shop of the Crown Willamette mill of the Crown Zellerbach Corporation at Camas, wash., can attest to the immensity of a rudder viewed "as a thing apart." These men, who have earned merit pins of gold from the Kaiser's Oregon Shipbuilding Corporation as "Shipbuilding Champions," will tell you that the gross weight of the rudder they now make together with the rudder stock is about 17 tons.

The paper mill is now shipping four of these monsters of metal fabrication every week to the shipyards. Soon it is scheduled to complete and ship five each week.

A sizeable job for any well equipped industrial plant accustomed to filling such orders, but especially for the machine shop of a paper mill.

The appended letter from one of the firms which has received these rudders is significant:

"Production in the war effort is important to all of us. Your deliveries against our purchase orders have enabled us to deliver three more Carriers during 1943 than our contract anticipated. This naturally makes us happy, and we want you to know that we appreciate the things that you and your organization have done to make this record possible.

"Receiving the material on time for production requirements is most important, but along with this, proper shipping records and information helps to eliminate errors and confusion in handling. We have appreciated your cooperation in this regard very much.

"All of the efforts that we could have possibly expended would have been of little avail if you had not furnished us with the materials with which these Aircraft Carriers are constructed; and we, therefore, wish to express our sincere appreciation of your fine production record.

"As the present contract is nearing completion we want to thank you for your splendid efforts in our behalf, and at the same time extend the hope that we will have the opportunity of working with your organization again on new contracts.

"Yours for victory in 1944,

KAISER COMPANY, INC.,
Vancouver Yard,
Signed, John J. O'Farrell,
Chief Expediter."

The construction job starts almost from scratch, with the machine shop utilizing almost all of its tools on the present rudders or on other war jobs, and even having to retool to the extent of some 75,000 man hours when their contract for tanker and aircraft carrier rudders—which they fomerly made—was exchanged for the newer and greater contract for supplying tankers and Victory ships with rudders.

The new rudders differ from the old in one significant detail; they are contra-guide. Reasons for shift in specifications from the former straight line, to the contra-guide principle, are unmentionable for security reasons according to the authorities.

Suffice to say the fin on the first rudder dropped ver

Camas welders work on jig FF where baffle plates are attached to backbone or tube support. Unfinished rudder, after the first process, as shown on next page (No. 1) has been carried by overhead track around a curve until ends are reversed to put heel casting in foreground. Projecting parts on both castings, used for handling, are later removed.

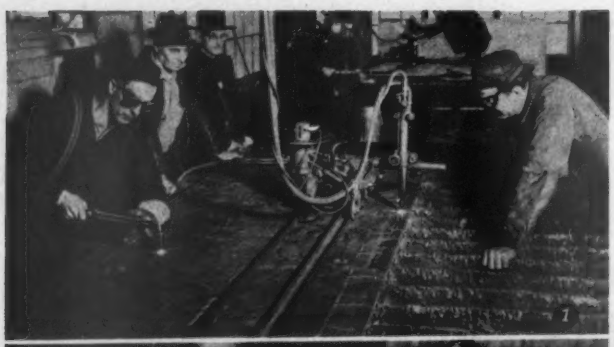
tically along the entire point in an unbending line from top to bottom, but the contra-guide rudder fins, on line at top and bottom only, proceed toward the center on diametrically opposed lines until the two are separated by a distance of approximately 18 inches at the center. For Victory ship rudders this intervening space is filled by a steel equilateral triangle with base of 18 inches and sides some 10 feet 8 inches long which is welded into place with the base of the triangle horizontal to the vertical imaginary line. The tanker rudders take a cone of equal base, and equal height, instead of a flat plate, to tie the two fins into rigidity.

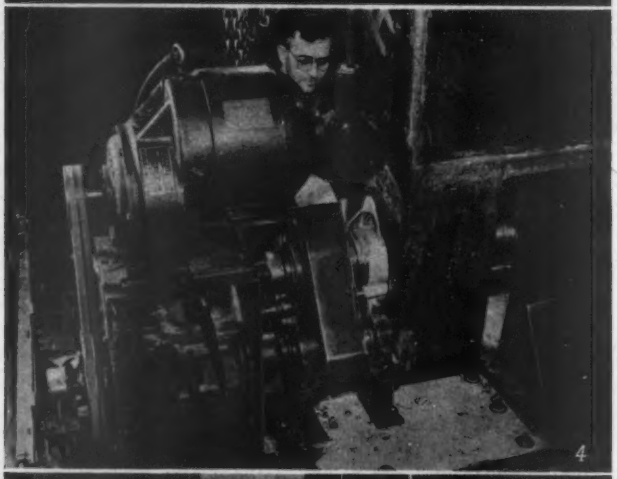
Process of Manufacture

● The heavy palm and other castings, with the necessary heavy pipe, bars, or sheets, are delivered as raw materials to the plant. These pieces are transported into the machine shop proper by electric tramway and are there bent into the specified shapes or machined to requisite sizes. Moving these individual parts about is generally accomplished on hand trucks or on dolleys pulled by shop mule or lift truck or with small motor overead equipment. After being finished for assembly, these individual parts are returned to the assembly line where the task of fitting them together according to prearranged plan proceeds.

The first step in assembly is to bring the palm and rudder heel casting into line for the welding of a pipe support which constitutes the rudder back. After this is completed the piece is hoisted with a Yale spur-geared block of 3-ton capacity and moved by overhead track to jig FF. Everything in this first process depends upon alignment of the two castings at 90 degrees to the vertical line of the pipe.

In jig FF, the second step progresses as the palm, or upper casting, is locked into place with the heel floating for proper alignment as the baffle plates are welded. These plates measure some 10 feet from the center of the pipe to which they are attached. All baffle plates, skin sheets, and other metal plate parts are cut to specifications in a plate shop attached to the assembly line. Some of the cutting, laid out by template, is hand done with acetylene torches; the remainder is accomplished by "Ox-weld," an oxy-acetylene torch made by Linde Air Products Company. The skin sheets are cut from ½-inch steel plates. During the second step, after the baffle plates are completed, the skin sheets on one side





are put into place for welding and are there held by means of the baffle plate tabs which are temporarily secured by clamps after they have been inserted in the slots.

After receiving this additional weight, a Yale 10-ton block is required to carry the partially finished rudder to the next jig and reverse it for attachment of the skin sheets on the opposite side.

The rudder now moves on to another room where wedges underneath the clamps bring the skin sheets into place for final welding, the burning off of the projecting tabs, and the smoothing down, with small hand or a floating machine grinder, of the finished surface.

After these processes are completed, the rudder fins are subjected to a test of 10 pounds of inside air pressure to be sure they are absolutely water-tight. During this testing a workman paints all outside welded seams with heavy soap water. Escaping air can be determined from the bubbles and the welding at that spot must be repaired. This is a very infrequent occurrence.

The rudders then move forward for final fittings and precision grinding. During this time they are set on their backs, that is, that portion which rides closest to the boat, where final machining of heel and palm castings is done to secure accurate alignment for the insertion of keel and upper swing supports. At this time also, the rudder control stock is bolted into place, the machine work to prepare the shaft for its rudder bearing and the rudder carrier which controls its movement from deck having already been completed in the machine shop where the stock was lathed to dimension for the bearing, carrier, and tiller, and also had key way cut for all three of these attachments, as well as one across the palm to receive the key in the lower palm casting.

The finished rudder is now moved by crane to a testing block at the rear of the mill where the Maritime Commission Inspector accepts or reject it on the ground that it meets or does not meet specifications. On acceptance the rudder control stock is again detached and the completed rudder, plus the control stock is loaded on a Mack 12-ton truck with semi-trailer, moved over a specially constructed road from the mill to the highway, and sent on its way to be hung upon a tanker or Victory ship at one of the nearby Vancouver, Wash. and Portland, Ore., shipyards.

Other War Projects

● The rudder assembly and finish occupies the time of a relatively few of the hundreds employed at the Camas mill. The other men put in their time in the

PHOTOGRAPHS SHOW SOME OF THE STEPS in manufacture of rudders for Victory ships and tankers at the Camas, Wash., mill.

1. Cutting baffle plates in the plate shop. Patterns have been laid out with templates and cutting progresses both by hand and by machine acetylene torches.

2. Final skin sheets set by clamps in position. These are welded on upper side of contra-guide tanker rudder after opposite side has been completed. Clamps attach to baffle plate tabs and wedges bring plates into position.

3. A closeup of grinding down and polishing off of baffle plate tab welding.

4. After rudders are laid on their backs and extensions used for handling are removed, the heel casting is brought to size and proper alignment for its keel support in manner shown here.

5. A rudder stock clamped in place for machining.

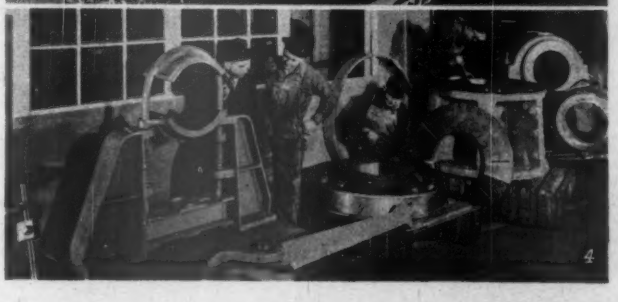
MORE STEPS IN THE PRODUCTION OF RUDDERS at Crown Zellerbach mill at Camas, Wash.

1. Palm casting is bored with its companion control stock to receive the bolts which secure the two. Six holes are required to complete this process.

2. Bolts and nuts then draw control stock into place against palm casting, as here shown. Here are four rudders on their backs — count 'em.

3. Last step in this process is precision machining of palm casting to receive the upper ship rudder support. This is similar to No. 1 above, except it is on upper, rather than lower, support.

4. Above deck parts of the rudder assembly—given final touches. Carrier and brakes for rudder are included.



machine shop proper, on a variety of war work which ultimately finds employment somewhere in war activity.

To show how this work spreads, jumping from contract to contract until the products are far afield from the rudder construction job, one has only to step into the huge machine shop which underlies a portion of the mill proper.

Already, the matter of machining the cast rudder stock with its huge palm has been mentioned. But in the machine shop are many more such stocks than could possibly be utilized on the rudders shipped out from Camas. The machine tools on this job are constantly busy, lathing down rough stocks which come from the Columbia Casting Company of Portland, Ore., for the rudder bearing, the rudder carrier and for the tiller.

At this step, the stocks are passed on to have the key ways cut; no small job in itself when one considers the 2 x 2-inch slots cut for approximately four feet in these steel castings both along the top of the stock itself and also the full length of the palm face. And then, a machine distinct from the one which bores holes through the upper and lower palms in the rudder assembly shop also bores and spot faces the bolt holes for attachment to a rudder in any yard to which the particular stock may be shipped, whether that yard be in Rhode Island or in California—for stocks are shipped, incidentally, to both.

At another place immense stern tubes which weigh six tons are machined to specifications, outside and in. These originally came to the mill as two rough castings, but they must go out as precision pieces because much of the success of each ship will depend upon the way this work has been done. For through this tube the propeller shaft passes from the ship into the water. They, therefore, must fit to exclude water, but, more important, they must fit to carry as a bearing, the continual revolving motion of the propeller shaft as it drives the ship onward. The machine which the men at Camas themselves built to do this work of turning these stern tubes is far from beautiful, except in efficiency, but there it surpasses a lathe handsomely, to furnish four stern tubes while a lathe is turning one.

At another place men turn stern tube bearings from brass. These are pressed into the stern tubes from either end to provide better surfaces and least frictional drag for propeller shaft encasement.

Here, a group of men work at machining or assembling three different types of roller chocks. These permit the passage of hawsers by which the boats are snubbed to piers or wharfs on landing, three to a side. The men built their own machine to do this job also, an old pipe machine which they overhauled, rebuilt, and rerigged to do in one hour what the ordinary lathe would require five hours to accomplish. Both rollers,

and castings which carry them are machined, spot faced, centering holes bored, the rollers are fitted with brass liners, and the whole is assembled. Another machine was built to bore the holes and spot face the castings which ultimately receive the chocks. These castings come from the Electric Steel Foundry Co., Portland, and bear the Hesse-Ersted, Portland, Ore., stamp.

There, another group works on a motor driven vertical capstan and anchor windlass. The men built the necessary machine to finish off one of these heavy duty pieces of equipment every 16 hours.

Crown-Z. Cable Cutter

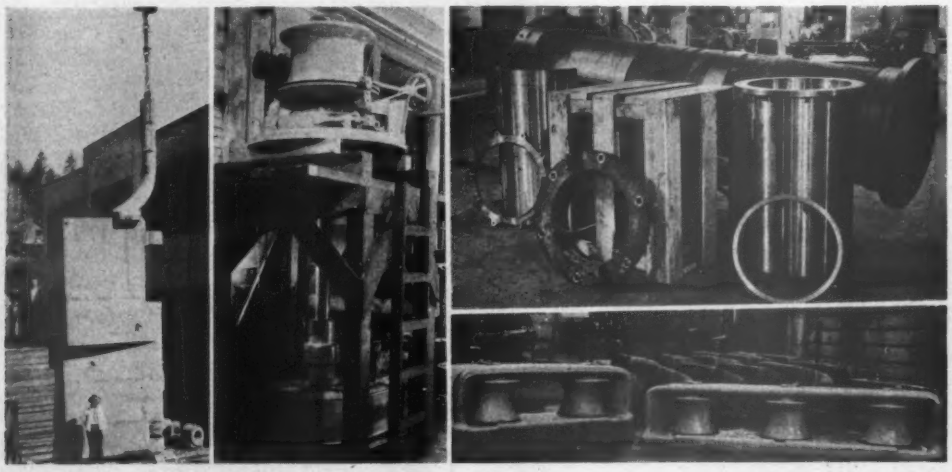
● Here, in a shop set off by itself, are two or three men engaged in a diametrically opposed operation of making something small. Only one other shop in the whole United States turns out these pieces of equipment, the New York Navy Yard. But of the many contributions by the Camas mill to the war effort, this alone carries the proud plate "Crown Zellerbach Corporation, Camas, Washington." It is a 2½-inch cable cutter, with inset blade, and a cable clamp which rides downward at the end of a screw which is propelled from the upper end with a high pressure geared arm and handle revolving parallel to the thrust. A completed contract for 500 of these has recently been augmented by another for twice the original number.

This machine shop has been employed since the war began at odd but useful occupations, from the building of cranes, some of them designed to carry immense loads on travel ways 100 feet apart, for shipyards such as Swan Island, or for steel mills such as Fontana where 100 are in operation, on down to the specialty jobs of the moment. This is all part of the war work done by Pacific Coast pulp and paper mills.

THIS IS THE ONLY ITEM made at Camas machine shop which carries the plate "Crown Zellerbach Corp., Camas, Wash." It is a cable cutter of a type made at only one other place in the U. S.

J. E. Hanny, resident manager, never finds himself too busy to neglect an opportunity to look in on the men in the machine shop or the rudder assembly plant. His pride in the accomplishment is immense, as is that of G. W. Charters, assistant resident manager in charge of that particular division of the mill. I. C. Shotwell, mechanical superintendent, enjoys showing the machines which have been built to speed production of the various assemblies, and R. O. Packer, of the Portland Crown Zellerbach office, whose job it is to produce contracts and deliver completed jobs, finds a great deal of satisfaction in these contributions.

When peace returns, the mills will gladly return all these special jobs to industrial plants accustomed to them, preferring to get back to their own specialty of paper making. But until the time arrives, or until the government no longer needs assistance of the mills, their machine shops will continue on the war work program.



At left, a rudder completed at the Crown Zellerbach mill in camas is shown here outside the mill. Note comparison in size with the men in the picture. Center, a vertical capstan and anchor windlass set up in Camas shop for alignment of motor shaft and final testing. Anchor chain slots can be discerned between ridges on the discs immediately below the top drum. At right (top), a stern tube assembly set up for shipment, showing how it is machined and drilled, also two brass liners, a boxed bearing, and other parts. At right (lower), Roller chocks of two different types.

Paper "Rags" For U. S. Navy Made At Camas and Carthage

● Paper wiping "rags," in most respects superior to cloth, have been developed by the United States Navy, working in collaboration with men in the pulp and paper industry.

The new product is less expensive than cloth and easier to store. About 20,000,000 pounds of paper rags of this type will be used by the U. S. Navy in 1944 and they will do their part in keeping the greatest fleet in the world in shipshape for the big push in the Pacific and action in the European theater.

These rags are being made of a high wet strength sulphite paper. Considerable quantities are being produced at the big Crown Zellerbach mill at Camas, Wash., and at the National Paper Products Division of Crown Zellerbach Corp. at Carthage, N. Y.

NEW ADVISORY BOARD

● A permanent Pulp and Paper Industry Council—an advisory body for the U. S. Department of Commerce—was organized June 28 at a meeting of industry leaders with Commerce Secretary Jesse H. Jones in his Washington office.

The idea of such a council was projected a year ago by George H. Mead, president of Mead Corp., and then president of the American Paper & Pulp Assn.

New du Pont Adhesive

E. I. du Pont de Nemours & Co., which last August introduced adhesive "77" for the production of weatherproof paperboard shipping containers that stood up under the Army practice of floating materials into beachheads, has developed a companion adhesive that reduces the box-maker's operative costs.

Produced in the laboratories of the Grasselli Chemicals Department, the new adhesive—listed as Du Pont adhesive "78"—contains all the qualities of the water-soluble vinyl resin "glue" introduced last year.

Acid Making In the Sulphite Pulp Industry

By A. H. LUNDBERG*

CHAPTER III -- Continued

V. CONDENSING AND SUBSEQUENT ABSORPTION

A.—A relatively simple system in this category is in use in a West Coast mill and was also described by Felthouse in his paper, "SO_2 Recovery from Sulphite Vomit Stacks."*

The system consists of three towers and operates as follows: "The vent gases from the blow pit enter the first tower which is tile packed. When the temperature of the vent gases reaches 90°C, water, thermostatically controlled to give sufficient volume to condense the steam and at the same time remain at a temperature above that at which SO_2 is absorbed, is sprayed in the top of the tower and flows down over the tile countercurrent to the gas. This water is then wasted to the sewer.

"For a period during the blow and for a short time afterwards water is sprayed in the top of the second absorption tower (also tile packed) and flows down over the tile counter-current to the SO_2 gas. The weak acid thus formed by the absorption of the SO_2 in the water is pumped to a storage tank and is added to the acid plant weak acid flow to the top of the strong tower of a conventional two tower Jenssen system.

"The last tower (lime rock packed) serves only to remove small quantites of SO_2 still present in the gas before it is exhausted to the atmosphere. The water drained from this tower is wasted." See Fig. 28.

The system thus described has one advantage over the "Cooling and Direct Absorption System, Flow Sheet No. 11,"* eliminating as it does excessive stack gas losses, but it does not take advantage of the heat recovery and greater SO_2 recovery it offers.

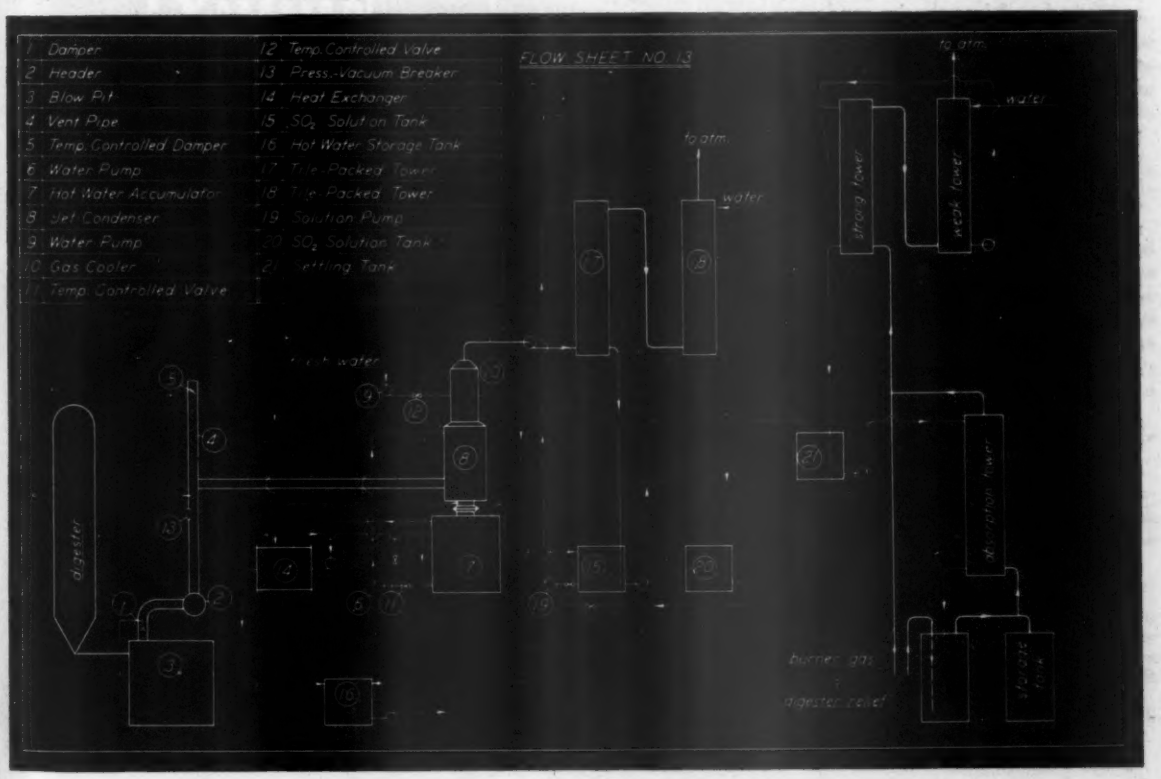
Its first tower operates as a condenser, but a jet condenser is superior to a tile packed tower, even with ample circulation, as it offers too great resistance to the gas flow.

The hot water leaving the condensing tower can, of course, be utilized as is, or, the heat can be transferred to fresh water. The gases leaving the tower are saturated with vapor and for better absorption should be cooled. The water condensed in the cooler should be separated and stored in a tank for use during the next blow for condensing purposes. If practiced in this manner, the volume water used over the second tower can be materially reduced and the SO_2 concentration kept higher, thus allowing a larger volume of water to be used on the weak acid tower. The wasted water from the third tower should also be saved and reused over tower No. 2.

If operated as suggested, a distinct improvement in SO_2 recovery and acid plant operation can be expected. As a matter of fact, it would be possible to make a

*Seattle, Washington. Mr. Lundberg is Western Manager, G. D. Jenssen Company, New York City.

*See June, 1943 issue, Pacific PULP & PAPER INDUSTRY.



strong enough SO_2 solution, so that same could be mixed with the tower acid without any lowering of the total SO_2 concentration. That would be of advantage at times when the tower acid combined SO_2 is too high.

B.—All the above raised points have been incorporated in the so-called Rosenblad System. See **Flow Sheet No. 13.**

In this system all the blow pits are connected to a common header through which the blow gases flow to a jet condenser. Each blow pit is equipped with a damper or water seal, disconnecting same from the header between blows..

The header—usually a wood stave pipe—has a standpipe with a thermostatically hydraulically operated damper. The purpose of the standpipe is to permit the evacuation of the air present in the blow pit and piping at the start of a blow to the atmosphere instead of forcing the non-condensable gases through the recovery system. It has been repeatedly pointed out that for efficient SO_2 absorption it is essential that the gas strength be kept as high as possible. Consequently the air present should first be eliminated before the gases are introduced into the jet condenser.

The jet condenser is placed on top or nearby a water tank, the hot water accumulator. Dr. J. N. Swartz in his paper, "Sulphite Blow Heat & Gas Recovery,"[18] describes the operation of the jet condenser and the purpose of the hot water accumulator as follows: "The condensing water will leave the condenser at a temperature of approximately 190°F and then pass to the top of the hot water accumulator. The hot SO_2 contaminated water thus intermittently collected (at each blow) in the top of the accumulator is continuously withdrawn, passed through a heat exchanger to be cooled, and is then returned to the bottom of the accumulator. The cooled water returned in this manner provides the condensing water which is returned to the jet condenser at the time of the succeding blow.

Thus the accumulator is always filled with water. Im mediately before a blow, all but the uppermost zone will be relatively cool, whereas immediately after a blow all but the bottom zone will be relatively hot, the operation of the heat exchanger being controlled to give this result. Sufficient water is used in the heat exchanger for taking up the heat and in this way a uniform flow of hot water entirely free from SO_2 is made available for any desired use.

Since the water used for condensing purposes is employed in a closed system and consequently is saturated with repect to SO_2, the SO_2 contained in the blow system is essentially not absorbed but passes on to the second stage: namely, the SO_2 absorption system.

[18]Canadian Pulp & Paper Assn., Jan. 27-29, 1943.
**See December, 1943 issue, Pacific PIJLP & PAPER INDUSTRY.

The SO_2 gases and vapor pass through a cooler after leaving the jet condenser and then the gas is ready for use. The water condensed in the cooler is permitted to flow back to the hot water accumulator. The gas thus obtained should contain not less than 80% SO_2 (dry basis) when the system is properly operated.

The utilization of such a gas would be simple were it not for the intermittent flow. Consider a 15-ton digester and that 100 lbs. of SO_2 are recoverable per ton. With a blowing time of ten minutes, that would mean that 150 lbs. of SO_2 are to be absorbed per minute. It is also to be remembered that the gas flow is not even uniform during the blow. It reaches a maximum of about 100% above average during the first part of the blow. A gas holder, as described under **Flow Sheet No. 7, Chapter II,**** would be the ideal apparatus to accumulate the gas for later continuous use either to the acid plant or recovery system were it not for the fact that the gases leaving the condenser are only slightly above atmospheric pressure. A pressure fan could possibly be used but as yet such an arrangement has not been tried.

Following methods are, however, in use.

a. Absorption of the SO_2 in Water. See Fow Sheet No. 13.
b. Absorption of the SO_2 in storage acid. See Fig. 29 and Fig. 30.

a. SO_2 gas of high strength absorbs readily in water, even at relatively high temperatures. See **paragraph IX, Chapter I.** With 20°C water it should be possible to produce at least a 6.00% SO_2 solution from a 80% SO_2 gas. That is higher than expected or required from any raw acid. Such a solution can be added continuously to the raw acid. The combined SO_2 in the acid is somewhat upset but can be corrected.

ABSORPTION CALCULATIONS

Assumed Data:

Sulphur consumption per ton pulp—250 lbs.
Sulphur loss in system per ton pulp—8 lbs.
Raw acid requirement per ton pulp—12,500 lbs.
Cooking acid requirements per ton pulp—19,200 lbs.
Burner gas (dry basis)—17%
Temperature of fresh water—60°F
SO_2 recovered per ton of pulp—100 lbs.
SO_2 solution 6% SO_2 per ton of pulp—1,667 lbs.

Thus:

Sulphur burned per ton of pulp: 250—50 = 200 lbs. = 400 lbs. SO_2
Raw acid made: 12,500—1,667 = 10,833 lbs.
SO_2 consumed: 400—16 = 384 lbs.
Assuming as per Fig. 24 that 29 lbs. SO_2 is returned to raw acid plant, the total SO_2 available for raw acid is 413 lbs.
The total raw acid thus necessary is: 413 ÷ 108.33 or 3.81% Total SO_2 which according to **Chart XXIII** gives a combined SO_2 of 1.60%.

The raw acid after mixing with the recovered acid solution will test: 4.11% Total — 1.39% Combined SO_2

If this combined SO_2 is too low, it will be necessary to circulate over the strong tower or permit more gas return from the reclaiming system (See **paragraph IX, Chapter II).**

This method will, to a certain degree, control the acid combination, useful especially in the summer time.

If more flexibility is wanted, the SO_2 solution can be stripped of its SO_2 content in accordance with **Flow Sheet No. 12*** in which case the combined SO_2 can be varied from 1.39% to 1.60% maximum according to

Chart XXIII. If higher water temperatures are used as per Chart XXIV, the differential will be 1.42% minimum and 1.77% maximum.

Operation of a complete Rosenblad System is as follows:

When a digester is ready to blow, the door or damper (Item 1) connecting its blow pit to the header (Item 2) is opened.

As the digester content is blown into the blow pit (Item 3), the steam and gases rise through the header and vent pipe to the atmosphere. When the gases in the vent pipe (Item 4) reach a certain predetermined temperature, the hydraulically operated damper (Item 5) on top of the vent pipe automatically closes and the water pump (Item 6) automatically starts pumping water from the hot water accumulator (Item 7) to the jet condenser (Item 8). A second pump (Item 9) is also automatically started, sending fresh water to the gas cooler (Item 10). In the pipe lines to the jet condenser and to the gas cooler are thermostatically operated valves (Items 11 and 12). The thermocouples are located in the pipe-lines leading away from the jet condenser and cooler respectively. The valves thus get their impulse from the temperature of the hot water and cooled gas, and more or less water is added as needed to keep the temperatures constant.

When a blow is completed and no more hot gases arrive to the jet condenser, the water valves close tight, the pumps stop, and the damper on top of the vent pipe opens.

As a safety precaution, the vent pipe is also equipped with a pressure-vacuum breaker (Item 13) to operate in case of failure of pumps and automatic valves.

The hot water is withdrawn continuously from the accumulator to a heat exchanger (Item 14) and returned to the accumulator to be reused for condensing purposes. As this water is saturated with SO_2 at the temperature maintained in the jet condenser, the loss of SO_2 from this source is practically nil. The increase of the water volume caused by the condensed vapor is continuously withdrawn after cooling to the SO_2 solution tank (Item 15).

The heated fresh water from above heat exchangers is pumped to a hot water storage tank (Item 16) for further use.

The SO_2 gas leaving the gas cooler enters tile packed towers (Item 17 & 18) meeting counter-currently a stream of water. The pump (Item 19) furnishing the water is inter-connected with the other pumps (Items 6 & 9), thus starting to operate at the same time. As noted, the pump (Item 19) is connected to the two SO_2 solution tanks (Item 15 & 20) to permit the use of a large volume of solution over the tower (Item 17) all times. This is necessary on account of the variable rate of gas flow to the towers.

The SO_2 solution from tank (Item 15) is continuously pumped to the stone tower acids settling tank (Item 21) from where the mixed acid is pumped to the reclaiming system.

Mr. Lundberg's article has developed wide interest in industry circles in both this country and Canada. Many inquiries have been made to this magazine as to whether the installments appearing in PACIFIC PULP & PAPER INDUSTRY will be published in book form.

In response to those inquiries, it may be stated that book form publication is contemplated, probably next year.

Use of Corrosion-Resisting Alloy Linings In the Pulp and Paper Industry

By H. A. SCHMITZ, Jr.*
A. O. Smith Corp., Milwaukee, Wis.

● Development in all fields is usually accelerated by a war, however, due to the great demand for the services of Metallurgists, and also the great demand for alloys for direct war purposes, the development of corrosion resistant alloy linings for the paper industry has been greatly retarded.

Primarily there are two conditions which cause alloys to corrode; that is the presence of a reducing medium such as sulphuric acid or of an oxidizing agent such as nitric acid. For reducing conditions, the hastelloy type of alloy has been generaly used, and for oxidizing conditions, the chrome bearing steels are usually successful.

Where both reducing and oxidizing conditions are present in a process, about the only way alloys can be used is to introduce an inhibitor or a neutralizer in the process to counteract the actions of one or the other.

There is no universal alloy which will meet all corrosion problems, and no manufacturer of alloys or vessels can guarantee against corrosion or failure due to corrosion during service. This is due to the many possible variations in the operating conditions over which the manufacturer has no control.

ABSTRACT

● The selection of corrosion resistant alloys for use in chemical plants, such as paper mills, should only be made after a thorough testing program and a careful analysis of all the conditions under which the alloy must function.

There is no universal alloy, and each application requires a thorough investigation.

The most successful applications are the result of a cooperative testing program carried on by both the fabricator and ultimate user under actual operating conditions.

Intelligent selection of an alloy for any given operating condition requires experience and careful watching during the entire testing program. These tests should be conducted under the supervision of a materials engineer.

The results obtained may be further checked by the installation of a pilot plant.

H. A. Schmitz, Jr., at the Portland meeting.

Changes in raw materials used, or in the process, may alter the corrosion conditions to such an extent that alloys may fail which previously have been successful and have given good service.

It is never safe to predict the performance of an alloy lining by basing it on some previous experience with the same alloy when used other than an attached lining.

The performance of many alloys is influenced by the stresses imposed on them. Under certain corrosive conditions, such as sulphite service, alloys that stand up if only stressed moderately will fail when stressed to a greater degree.

Temperature is a cause of high stress in linings. This is due to the difference in coefficient of expansion between the alloy and the carbon steel. Additional stress may be imposed due to poor heat transfer when the lining is not in good contact with the carbon steel backing. This, however, can be reduced, provided the lining is properly applied and care is taken to insure good contact between lining and the carbon steel.

Testing Programs

● The most progress in selecting the proper alloy lining has been made where a well-organized testing program was instituted. In these testing programs both stressed and unstressed samples were installed under actual service conditions. The samples were prepared so that they represented the various steps in the fabrication of equipment such as the forming, welding, and heat treating when required. **Figure 1** shows a typical set of test specimens.

Following such a testing program, some piece of auxiliary equipment or pilot plant may be built as a check on the conclusions drawn. In this way the actual operating experience will be available to give the operator confidence in the selection of the proper lining for more expensive equipment.

These testing programs are of little value unless they are organized on a cooperative basis with both the mill and the manufacturer taking care to assure proper supervision and control. In mills where special research and development facilities or development engineers are not available, a man should be assigned to the job with sufficient authority and responsibility to assure the proper execution of any program agreed upon.

Obviously the manufacturer must have the necessary metallurgical facilities and experience to lay out such a program and be able to analyze and study the specimens as the program develops. The A. O. Smith Corporation is one manufacturer which has such facilities, and has been doing such work with paper, chemical, and oil industries for many years.

As these programs progress, reports should be issued by the manufacturer covering all the information developed to date. These tests reports are very useful, not only for determining the type of lining to be used, but also for guiding and controlling the manufacture of such equipment. Periodic meetings between the mills and the manufacturers are often necessary for discussing the work or clarifying or readjusting the program. This may be necessitated by some change in the process or in the operating conditions.

Good manufacturing procedure involves having all drawings of the proposed equipment checked by a metallurgist who is thoroughly familiar with the operating conditions, and who has also made a thorough study of the testing program and is aware of all the conditions relating to the job. The metallurgist should further check each sheet of the alloy as received from the mills to determine the presence of tramp materials and also to determine if heat treatment is required to put the alloy in the proper condition. It is sometimes advisable to run an accelerated corrosion test as a means of further checking the proper selection of the alloy. Specimens, as well as careful records, should be kept for future reference so that if there is any change in the process, a check can be made to see what, if any, effect these changes will have on the alloys. In analyzing the results, it may be desirable to consult with the manufacturer regarding previous tests under the same operating conditions at other plants.

Experiences of Two Mills

● All the tests and precautions will be of no value unless the mill operator has a full appreciation of the problems involved. As already stated, a change in the process or of the raw materials may change the corrosion, and unless the mill operator bears this in mind and conscientiously keeps a record of any such changes, the results obtained may lead to the selection of an alloy which would fail in service.

In the oil and chemical industries where greater progress has

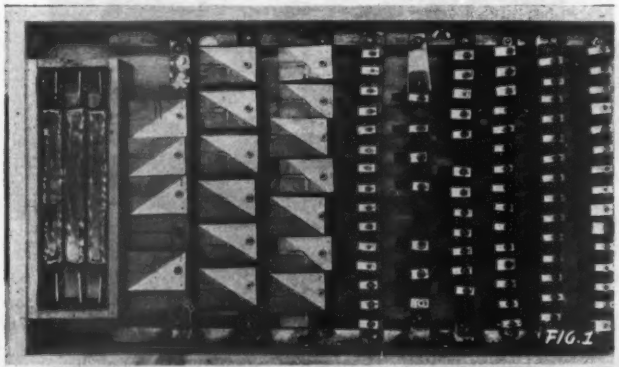
*Paper presented at Pacific Coast Joint Spring Meeting (Superintendents—TAPPI), Portland, Ore., June 3, 1944.

been made, many companies have found it necessary to employ materials engineers to supervise the development of the testing program. As a result, our company has manufactured approximately 390 alloy-lined vessels for the oil industry, 110 vessels for the chemical industry and 12 vessels for the paper industry. This would indicate that the employment of a materials engineer has been largely responsible for the greater showing in some industries.

When general consulting engineers are employed, they should be given the opportunity of carrying on a testing program under mill operating conditions, and once such a program is adopted, any change in the process or raw materials should be referred to them before jeopardizing the equipment due to these changes.

Where a properly organized program has been followed, the use of alloy linings has been successful; for instance, one paper mill conducted a test over a considerable period of time to determine proper alloy as well as the manufacturing procedure or heat treatment and polish required. This mill assigned a material engineer to this job, and in cooperation with our Metallurgical Department, conducted a careful and thorough test. After a number of meetings, the alloy lining was decided upon and an acid storage tank was built. The lining is still intact after more than four years of service, and a recent inspection showed no evidence of any attack on the lining. This same success was experienced in a midwestern sulphite mill where two rotary digesters were installed several years ago. Both these mills realized the importance of a testing program and gave their fullest cooperation. Figure 2 shows one of these digesters prior to its installation.

On the other hand, we have an instance where a long program was carried out in a mill. The tests indicated that a certain type of alloy was best suited for the purpose; however, after the vessel was built and put into operation, the lining failed in a comparatively short time. Investigation showed that there had been a change made in the operating conditions, which was, supposedly, of negligible importance but proved to have a very decided effect on the corrosion rate.



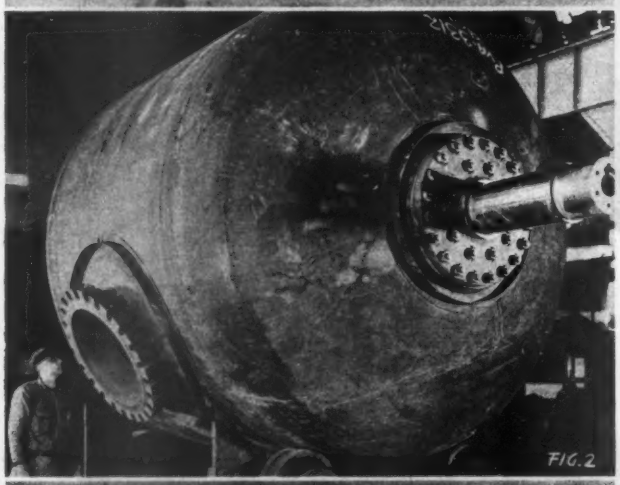


FIGURE 1—Typical set of test specimens.

FIGURE 2—Rotary digester prior to installation.

FIGURE 3—Layer Vessel (46 ft. long) for chemical industry.

Field Applied Linings

● The question is often raised whether old equipment can be salvaged with field applied alloy linings, or whether it should be scrapped or replaced with new units. The experience in other industries is that field applied linings are impractical for service under thermal shock because the lining material cannot be bonded on sufficiently close centers; as a result, excessive repairing, or complete failure will usually be experienced.

Field applied linings are also impractical where corrosive conditions require a "bottle tight" job. They are, of course, out of the question where heat treatment after application is necessary or where a polished surface is required.

Field erection of large alloy lined vessels is practical except where heat treatment after welding is necessary. Many such vessels have been built in recent years for the oil industry in particular. The plates are lined and formed by the manufacturer. When possible, subassemblies are made, and all remaining joints and seams prepared for field assembly and welding.

Alloy linings open up many new possibilities for the paper industry as they have for other industries. They permit higher pressures and when properly applied more thermal shock than a ceramic lining. They will supplement ceramic for many common services, and there is not the danger of the corroding medium channeling back of the lining. Furthermore, the productive capacity of any piece of equipment may be increased by the use of the thinner metalic lining.

Alloy linings have made possible new processes requiring high pressure. Many vessels have been built for the chemical industry of multilayer construction with only the inside layer built of alloy. This inner layer can be heat treated or otherwise prepared, after which outer layers of the carbon steel plate are added to produce any desired thickness. Such vessels are unlimited in length, and can be built for any practical pressure. Operating pressures around 5,000 PSI are not uncommon. Figure 3 is a layer vessel for the chemical industry, approximately 46 ft. long, having a wall thickness of 6 inches.

While not strictly on the subject under consideration, glass linings also hold considerable promise for the paper industry. This lining consists merely of spraying the glass on to the steel surface, after which it is glazed by heating to about 1600° F. Glass lining of a vessel requires a uniformity of section and has not been applied on heavy plate. Some redesign is usually necessary to accommodate this type of lining.

It is generally expected that there will be a period of considerable business activity after the war, and much worn out or obsolete equipment will have to be removed or replaced. This will offer many opportunities for alloy linings. Little actual work is possible now because of WPB limitation orders restricting the production of many of the necessary alloys. But samples can now be obtained, and the testing programs and initial development can in many instances be accomplished during this waiting period.

Use of the Graphical Record In a Modern Industrial Plant

By A. S. GERRY*

Pulp Division, Weyerhaeuser Timber Co.

● The rapid development of the laboratory and instrument control in the modern industrial mills has brought the use of the graphical chart to the fore, and more and more attention should be paid to its possibilities.

The purpose of the graphical chart is to plot variables in the form of curves which indicate the amount of control that is being attained, and the advantages of this chart cannot be overestimated. Primarily, it shows variables or factors in a way that is simple to understand. The graphical chart, also, saves valuable time—for there, at a glance, is a complete history of trends for a long period of time. When these tendencies are compared with other related subjects, they become invaluable in smoothing out an operating problem, in improving the quality of a product or in reducing a cost.

Since technical control contributes greatly toward the use of the graphical record, some of the data for such control must come from the general types of instrumentation, of which every mill has some or all:

1. Indicating instruments, which include indicating controllers and indicating integrating controllers.

2. Recorders, which include recording controllers and recording integrator controllers.

These instruments are immediate records themselves and so it is their use in the mills which has brought about the need for a system or department in which to collect, record, and analyze the data these instruments give. In other words, the graphical chart carries instrumentation a step farther; for instrumentation informs as to what is taking place at the time it occurs, while the graphical record tells the past, present, and trends for future use.

The laboratory, too, does its part by supplying records of the chemical and physical tests, which are used in controlling production and quality.

All industrial plants maintain, to various degrees, information on production, raw materials, days operating, etc., and these same mills also make use of instrumentation and routine tests. Such sources of information, routine tests and instrumentation may be simple or obtained from the most elaborate of equipment, but in either case, a wealth of records are there, waiting to be of further use in the collecting, compiling and translating into curves on the graphical chart.

Since an analysis of these records should be of immediate interest to any management, an examination of the value of graphical plotting should be made. To show how easily it can be fitted into any of our thousands of industrial plants, the procedure carried out in graphical department, itself, will be examined.

Weyerhaeuser Chart Room

● From the beginning the Chart Room has been an important feature of the Weyerhaeuser Timber Company's Pulp Division. The accompanying pictures, charts and explanations were made at the Everett, Wash., mill, of that company.

In preparation for the process of showing variables in a graphical manner, members of the technical staff gather from all the operating departments, the recording charts and the operators report sheets which have been filled out during the past 24 hours.

The information on these report sheets come from routine chemical and physical tests plus readings from indicating and recording instruments. Along with picking up these reports and recording charts; meter readings at the end of the mill day are taken on steam, electrical and water meters, weightometers, and level recorders on storage tanks, to help determine inventories and raw material usages. Some information is taken directly from recording instrument charts by planimeter, average hourly readings or by differences in intergrator readings.

The view of the digester operating floor will assist in illustrating where much of this data comes from. The information

*Former chart room foreman at the Everett Wash., mill; now sales representative. He delivered this paper at the Joint Annual Meeting, Pacific Section, TAPPI, and Pacific Coast Division, American Pulp & Paper Mill Supts. Assn., Portland, Ore., June 3.

(Left) THE GRAPHICAL CHART CABINET at the Everett mill. (Right) THE RECORDING CIRCULAR CHART FILE. These are discussed in the accompanying article. Mr. GERRY, the author, at left.

is made up from chemical and physical tests which are taken by the operator, plus readings from indicating and recording meters. In calculating and recording the data for the digester work book, it is necessary to have the individual cooking report sheets, chip moisture sheet and all the digester house recording instrument charts.

The cooking report sheets cover such variables as: acid concentration and color at the start of cook, blowdown and blow; wet tons of chips per digester; digester filling time; spacing time; hours cooking; bleachability; and progressive temperature and pressure readings throughout the entire cooking cycle.

The chip moisture report sheet contains figures for wet and oven dry weights on a composite chip sample from each digester, as it is being filled with chips.

The recording instrument charts for each digester, consisting of steam flow, pressure, temperature, liquid level and circulating flow, are put on to the instruments as a new charge of chips goes into the digester. These charts are marked with date, digester number, monthly cook number, time of steaming, etc.

At the end of each mill day, the total number of individual digester report sheets are stapled together in numerical order blown. Each set of recording charts for individual cooks are also stapled together and both are now ready for the Chart Room where the clerk will calculate and average the daily variables in the digester work book.

In like manner, all other report sheets and recording charts are turned over to the Chart Room, where the process of breaking down, item by item, begins.

The recording charts used every day, average close to two hundred in number and represent; acid, water and steam flow, pressure, temperature, liquid level and per cent gas recordings.

On these report sheets, where routine tests and readings have been recorded, each set of figures is averaged for the day and accumulated to the previous totals for the month. These totals are averaged, thus giving an up-to-date average of the variables for the month.

At the end of each month, the completed records in all the work books are removed from the covers and assembled in one book for the month. A new set of work sheets are inserted in the department work book covers and kept there for another full month.

The totals for each variable at the end of every month are transferred to the monthly recapitulation book and accumulated to the previous totals in order that accumulated averages for "the current year by months" may be calculated. These records are now ready to be transferred to the section designated as the "current year by months" on the graphical chart.

Yearly Recapitulation

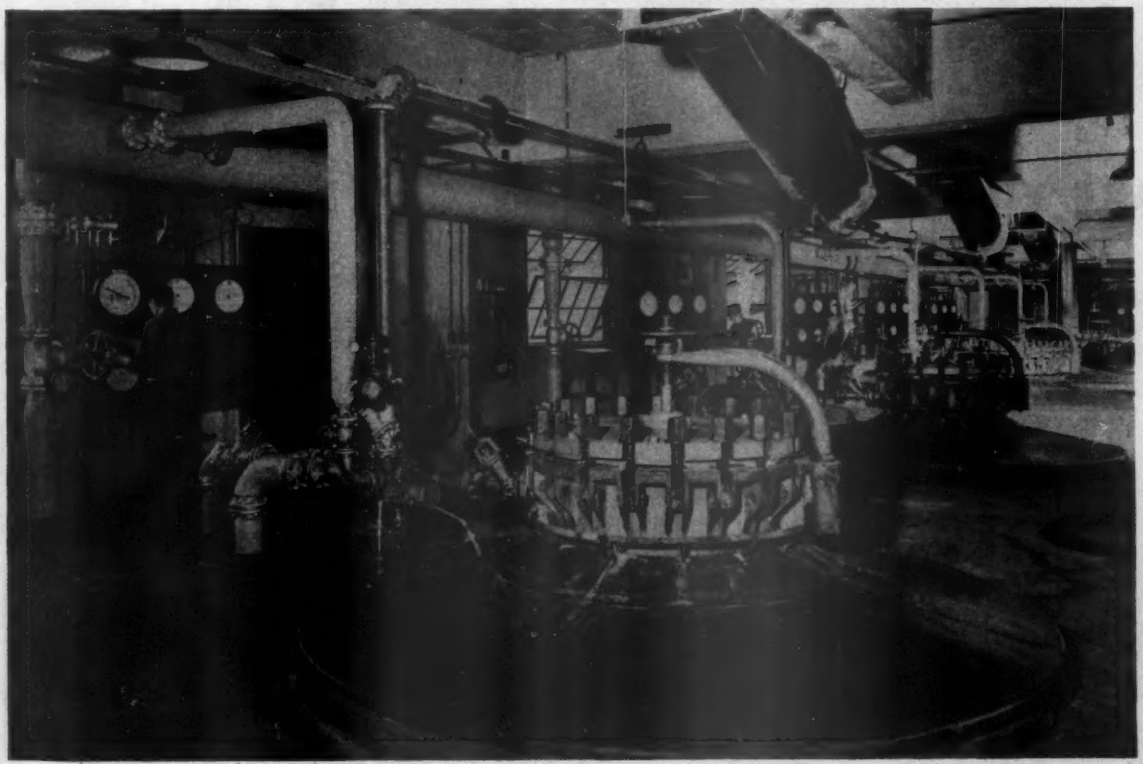
● At the end of each year, the totals from the current year monthly recapitulation book are transferred to the yearly book. They are totaled and averaged in the same manner as the monthly book. When this information is complete, these records are put on the graphical charts in the section for yearly averages.

The averages, which have been calculated and entered in the work books, are now ready to be translated on to the graphical chart.

These graphical chart sheets are 23¾" wide by 55¼" long, and are drawn up in such a manner to give information on a daily basis for a full year. In addition, this chart has sections for yearly averages, monthly average for the past year and monthly averages for the current year. The heavy horizontal lines break the graph sheet up into one hundred sections with five spaces to the section. Vertical lines are drawn at the end of every week with brown ink, which breaks the month up into weekly groups for comparative purposes.

Variables plotted on these charts are posted in alternating colors of black and red ink, making the curves easier to follow when variables cross each other. These items are also assembled together and are offset in groups which are closely related. By this practice, they are found much more readily.

Each variable has with its scale, a standard or guide line, which is drawn in with brown ink. If a standard has been set for operation, this is used. But where standards are not set or used, a guide line is drawn on the scale nearest to the average operating condition. These standard or guide lines help to



THE DIGESTER OPERATING FLOOR at the Everett, Wash., mill, Pulp Division, Weyerhaeuser Timber Co., showing where much of the data for charts comes from.

Use of the Graphical Record In a Modern Industrial Plant

By A. S. GERRY*

Pulp Division, Weyerhaeuser Timber Co.

● The rapid development of the laboratory and instrument control in the modern industrial mills has brought the use of the graphical chart to the fore, and more and more attention should be paid to its possibilities.

The purpose of the graphical chart is to plot variables in the form of curves which indicate the amount of control that is being attained, and the advantages of this chart cannot be overestimated. Primarily, it shows variables or factors in a way that is simple to understand. The graphical chart, also, saves valuable time—for there, at a glance, is a complete history of trends for a long period of time. When these tendencies are compared with other related subjects, they become invaluable in smoothing out an operating problem, in improving the quality of a product or in reducing a cost.

Since technical control contributes greatly toward the use of the graphical record, some of the data for such control must come from the general types of instrumentation, of which every mill has some or all:

1. Indicating instruments, which include indicating controllers and indicating integrating controllers.

2. Recorders, which include recording controllers and recording integrator controllers.

These instruments are immediate records themselves and so it is their use in the mills which has brought about the need for a system or department in which to collect, record, and analyze the data these instruments give. In other words, the graphical chart carries instrumentation a step farther; for instrumentation informs as to what is taking place at the time it occurs, while the graphical record tells the past, present, and trends for future use.

The laboratory, too, does its part by supplying records of the chemical and physical tests, which are used in controlling production and quality.

All industrial plants maintain, to various degrees, information on production, raw materials, days operating, etc., and these same mills also make use of instrumentation and routine tests. Such sources of information, routine tests and instrumentation may be simple or obtained from the most elaborate of equipment, but in either case, a wealth of records are there, waiting to be of further use in the collecting, compiling and translating into curves on the graphical chart.

Since an analysis of these records should be of immediate interest to any management, an examination of the value of graphical plotting should be made. To show how easily it can be fitted into any of our thousands of industrial plants, the procedure carried out in graphical department, itself, will be examined.

Weyerhaeuser Chart Room

● From the beginning the Chart Room has been an important feature of the Weyerhaeuser Timber Company's Pulp Division. The accompanying pictures, charts and explanations were made at the Everett, Wash., mill, of that company.

In preparation for the process of showing variables in a graphical manner, members of the technical staff gather from all the operating departments, the recording charts and the operators report sheets which have been filled out during the past 24 hours.

The information on these report sheets come from routine chemical and physical tests plus readings from indicating and recording instruments. Along with picking up these reports and recording charts; meter readings at the end of the mill day are taken on steam, electrical and water meters, weightometers, and level recorders on storage tanks, to help determine inventories and raw material usages. Some information is taken directly from recording instrument charts by planimeter, average hourly readings or by differences in intergrator readings.

The view of the digester operating floor will assist in illustrating where much of this data comes from. The information

*Former chart room foreman at the Everett, Wash., mill; now sales representative. He delivered this paper at the Joint Annual Meeting, Pacific Section, TAPPI, and Pacific Coast Division, American Pulp & Paper Mill Supts. Assn., Portland, Ore., June 3.

(Left) THE GRAPHICAL CHART CABINET at the Everett mill. (Right) THE RECORDING CIRCULAR CHART FILE. These are discussed in the accompanying article. Mr. GERRY, the author, at left.

is made up from chemical and physical tests which are taken by the operator, plus readings from indicating and recording meters. In calculating and recording the data for the digester work book, it is necessary to have the individual cooking report sheets, chip moisture sheet and all the digester house recording instrument charts.

The cooking report sheets cover such variables as: acid concentration and color at the start of cook, blowdown and blow; wet tons of chips per digester; digester filling time; spacing time; hours cooking; bleachability; and progressive temperature and pressure readings throughout the entire cooking cycle.

The chip moisture report sheet contains figures for wet and oven dry weights on a composite chip sample from each digester, as it is being filled with chips.

The recording instrument charts for each digester, consisting of steam flow, pressure, temperature, liquid level and circulating flow, are put on to the instruments as a new charge of chips goes into the digester. These charts are marked with date, digester number, monthly cook number, time of steaming, etc.

At the end of each mill day, the total number of individual digester report sheets are stapled together in numerical order blown. Each set of recording charts for individual cooks are also stapled together and both are now ready for the Chart Room where the clerk will calculate and average the daily variables in the digester work book.

In like manner, all other report sheets and recording charts are turned over to the Chart Room, where the process of breaking down, item by item, begins.

The recording charts used every day, average close to two hundred in number and represent; acid, water and steam flow, pressure, temperature, liquid level and per cent gas recordings.

On these report sheets, where routine tests and readings have been recorded, each set of figures is averaged for the day and accumulated to the previous totals for the month. These totals are averaged, thus giving an up-to-date average of the variables for the month.

At the end of each month, the completed records in all the work books are removed from the covers and assembled in one book for the month. A new set of work sheets are inserted in the department work book covers and kept there for another full month.

The totals for each variable at the end of every month are transferred to the monthly recapitulation book and accumulated to the previous totals in order that accumulated averages for "the current year by months" may be calculated. These records are now ready to be transferred to the section designated as the "current year by months" on the graphical chart.

Yearly Recapitulation

● At the end of each year, the totals from the current year monthly recapitulation book are transferred to the yearly book. They are totaled and averaged in the same manner as the monthly book. When this information is complete, these records are put on the graphical charts in the section for yearly averages.

The averages, which have been calculated and entered in the work books, are now ready to be translated on to the graphical chart.

These graphical chart sheets are 23¾" wide by 55¼" long, and are drawn up in such a manner to give information on a daily basis for a full year. In addition, this chart has sections for yearly averages, monthly average for the past year and monthly averages for the current year. The heavy horizontal lines break the graph sheet up into one hundred sections with five spaces to the section. Vertical lines are drawn at the end of every week with brown ink, which breaks the month up into weekly groups for comparative purposes.

Variables plotted on these charts are posted in alternating colors of black and red ink, making the curves easier to follow when variables cross each other. These items are also assembled together and are offset in groups which are closely related. By this practice, they are found much more readily.

Each variable has with its scale, a standard or guide line, which is drawn in with brown ink. If a standard has been set for operation, this is used. But where standards are not set or used, a guide line is drawn on the scale nearest to the average operating condition. These standard or guide lines help to

THE DIGESTER OPERATING FLOOR at the Everett, Wash., mill, Pulp Division, Weyerhaeuser Timber Co., showing where much of the data for charts comes from.

ARE YOUR FAN PUMPS YOUR BOTTLENECK?

Install the latest and best stock preparation equipment ahead of your machine—modernize your wet end and increase your dryer—do all those things but neglect your fan pumps and you've merely created a bottleneck.

When priorities permit, replace obsolete and inadequate fan pumps. Give the rest of your equipment a chance to "run at full capacity". Equally important, order now to get them reasonably soon after hostilities cease.

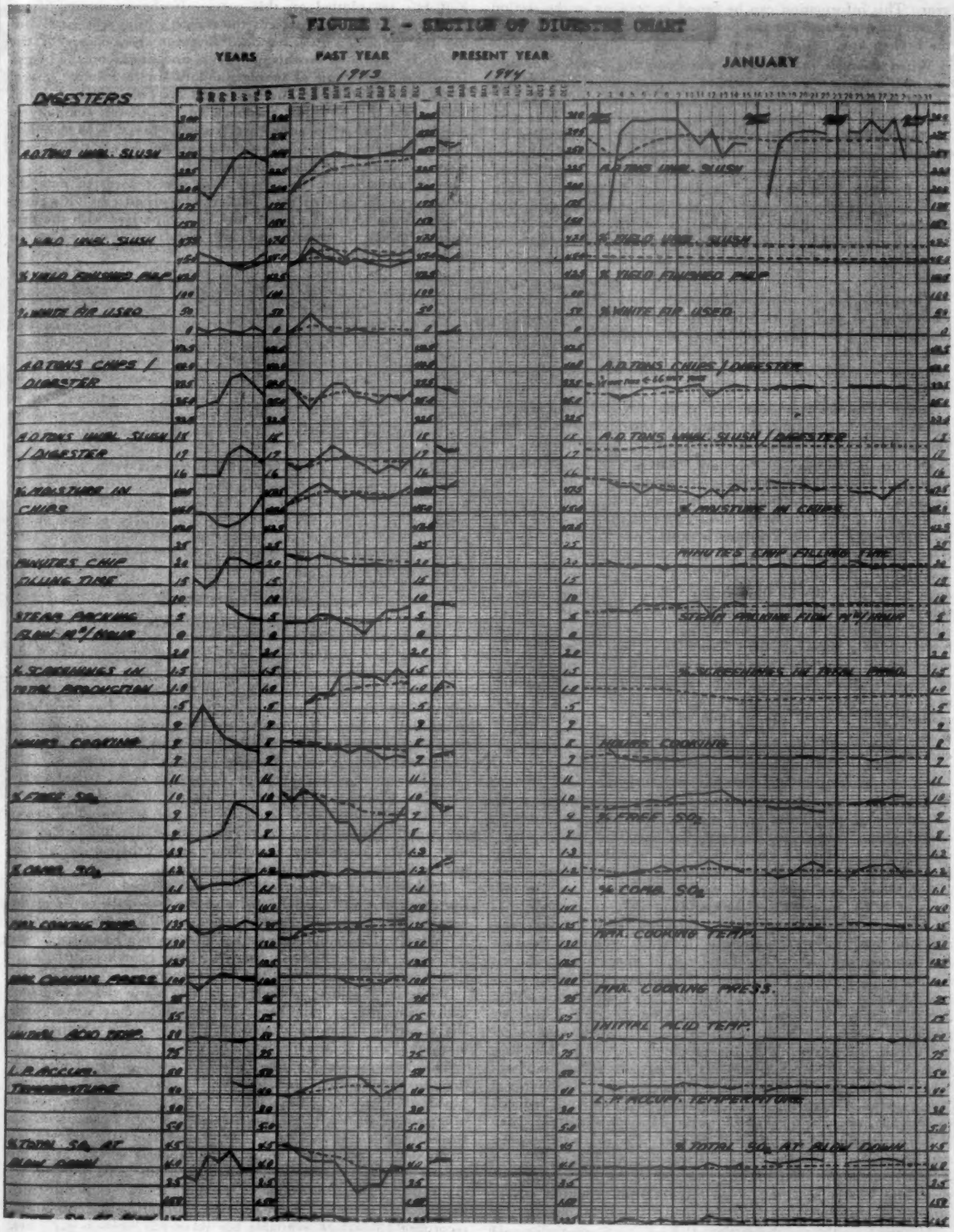
SHARTLE BROS. MACHINE CO.

MIDDLETOWN, OHIO

Dilts Machine Works, Fulton, New York.
Divisions of The Black-Clawson Co., Hamilton, Ohio.

Dilts

Centrifugal and plunger types for all stock and white water pumping. All types and capacities. Also agi-flo pumps for chest agitation.



analyze trends, for at a glance, fluctuations are readily observed. These lines and scales are put on the chart boards just one month in advance, due to possibilities of changing the scale if needed. Scales and guide lines should not be changed unless absolutely necessary because it distorts the picture across the chart.

In plotting a chart, all daily averages are connected to the previous day's average with a solid line and the to-date averages are connected by broken lines. In the monthly sections, the average is connected by solid lines and the accumulated averages are connected by broken lines. If, for example, a request is sent in for the daily average of air dry tons of chips per digester for the first ten days of January, the reading of the broken line on the tenth day of that month would give you this information. Or a question may be asked about the average per cent moisture in chips, for the first seven months of last

year. This information can be found by looking at the section of monthly averages for the past year under July, and reading the broken line.

When changes are made in the operating practice or any unusual condition exists which would show a decided change on the graph, a small note with an arrow indicating this change, is put on the chart. Notes appearing on the digester chart such as "sixty-six wet tons per digester" indicate a new standard set in the processing of pulp. Other notations, such as "discontinued knot boring," "Started hydraulic barker," and "started new fourteen foot chipper," appear on the chart of chip processing, as changes made in the use of equipment. Reminders, such as these, give clues as to why some of these trends had changed. Looking back over past records and trying to analyze some of the trends, these notes are of tremendous value.

There are two hundred and seventy items with an average of twenty for each chart, which are plotted on the graphical charts daily. From this total number of variables, over fifty per cent come directly or indirectly from recording or indicating instruments. The balance come from physical and chemical tests.

A few examples from a section of the digester chart (Figure 1), will serve to bring out the trends and their relations to other variables.

During the months of February, March, and April, of the past year, the curve shows what percentage of white fir chips were used. The curve shown on per cent yield of unbleached slush from chips, follows the same trend as the per cent white fir used, while the air dry tons of chips per digester shows a trend just opposite from the per cent white fir used.

Another illustration is shown in the section for yearly averages, as to some of the trends that follow the air dry tons of slush produced. Some of these variables are; air dry tons of chips per digester, minutes chip filling time, steam packing flow, hours cooking time, per cent free SO_2 in cooking acid, maximum cooking temperature and maximum cooking pressure. All of these variables are very closely related to production as well as to each other, and by plotting these items in a graphical manner, only a quick examination of the chart is necessary to show that; as production increased or decreased, the above curves on the variables generally followed the production trend.

Cooking Operation Analysis

● Of course, in making an analysis of the cooking operation, all other factors plotted on this chart have to be taken into consideration as well as the inter-relations from other departments. An interesting board from the standpoint of instrumentation is the steam chart which shows steam production and distribution. On this chart all steam curves are plotted in millions of B.T.U.s, instead of thousands of pounds of steam. As all of the steam flow meters are calibrated for a definite pressure and temperature it is possible, from the recording pressure and temperature charts, to obtain actual operating conditions for these flow meters. Correction factors are calculated daily from a set of steam tables and applied to the flow, thus giving actual pounds of steam. The heat content in B.T.U.s per pound of steam at actual operating conditions are also calculated from the steam tables. By distribution on a B.T.U. basis, heat requirements by departments are more easily compared. Steam is generated at 610 lbs. pressure and 675° F., having a heat content of 1335 B.T.U.s per pound. This steam is reduced to 205 lbs. pressure at 525° F. with a heat content of 1280 B.T.U.s per pound for the mill header. From this, the pressure is reduced to as low as 15 lbs. pressure at 260° F. having a heat content of 1180 B.T.U.s per pound. It is through the recording charts that the above accurate information is obtained and transferred into curves on the graphical chart.

A section on this steam graphical chart, see Figure 2, is used for plotting information on electrical production for each of the three generators, plus power company readings of incoming K.W.H.s, maximum fifteen minute K.W. demand and K.W.H. feedback. On the maximum fifteen minute demand, a standard has been set on past operation for the allowable peak. Based on this allowable peak, a maximum of K.W.H.s is allowed for the month. A standard line is drawn showing the allowable K.W.H.s from the power company and the actual incoming K.W.H.s are plotted on this curve. If the maximum fifteen minute K.W. demand exceeds the monthly allowable peak during the month, a new standard line for the balance of the month is calculated on this new peak, and drawn on the board. It is possible for this allowable standard line to change several times during the month, as new peaks are established. On this same scale the K.W.H.s feedback to the power company is plotted, so that comparisons are available for K.W.H.s coming in and going out. These curves are watched very closely by the manager and power plant foreman.

It is interesting to look back over past records to note the increase or decrease of total M.K.W.H.s produced. This curve shows a decided trend upward and by comparison with the production of the three turbines below, trends point out where the increase was produced.

Besides the digester and steam graphical charts, there are eleven more graphical charts that are kept up to date every day. Since these charts cover all the operating departments, from the filter plant to the machine room, plus two more for the power house and one each for quantity and quality, a specially constructed cabinet shown in an illustration is provided for these records. This cabinet is so designed that it can be worked on from either side. If someone comes in to look at the charts, they may study on one side of the cabinet, while the clerks work on charts from the other side—thus, neither one is disturbed.

When studying a board for the current year, it may be necessary to go over the records for any past year, these charts on the reverse side of the current year's board. If it becomes necessary to go over the records for any past year, these charts are also filed in this record cabinet, properly labeled by department and year. In all, daily records for a period of six to eight years are available.

Filing Equipment

● When all the information has been transferred from the recording charts to the graphical charts, they are filed away in a cabinet (see protograph) provided with drawers that hold two removable plates with spindles attached. This chart file has ample capacity to hold at least the current year's recordings. They are filed away in such a manner that the charts pertaining to each department are kept by groups or sections. This makes the file more accessable and useful to the foremen. Each drawer is labeled, showing the charts it contains. If a foreman wishes to go back over the record of a certain instrument, he is able to take from the file all of the charts for the current year. By taking hold of the top of the spindle and removing the plate from the cabinet, all of the charts come out with it. This keeps them all together and in their order according to the date in which they are recorded.

After the first of the year, when the cabinet is nearly filled, the charts are removed, bound and properly labeled as to the name of the chart and time represented. They are then taken to the pulp storage building and filed away in a room for future reference. I might add that many of them have been used after they have been taken from the Chart Room.

There is, of course, a limit as to how many charts and how many years they may be kept, for they do take up space. Some charts can be discarded after a period of years, while there are many that should be kept indefinitely.

The daily report sheets are also filed away after all information has been entered into the work books. This file is composed of drawers, holding loose leaf binders, so that current reports may be added to the previous reports by departments for a year. These reports are also taken from the current file at the end of each year, bound, and properly labeled as to the date represented and type of report it contains. These reports are kept in the same room at the pulp storage building with the recording charts. Both operating department reports and recording charts are available for reference work at all times.

The figures from the recording charts and report sheets, which have been averaged in the work books, can now be returned to the operators in their various departments, in the form of graphical charts and progress records.

An illuminated chart cabinet is provided in order that these records and graphical charts may be posted each day—keeping before the operators, the up-to-date operating variables.

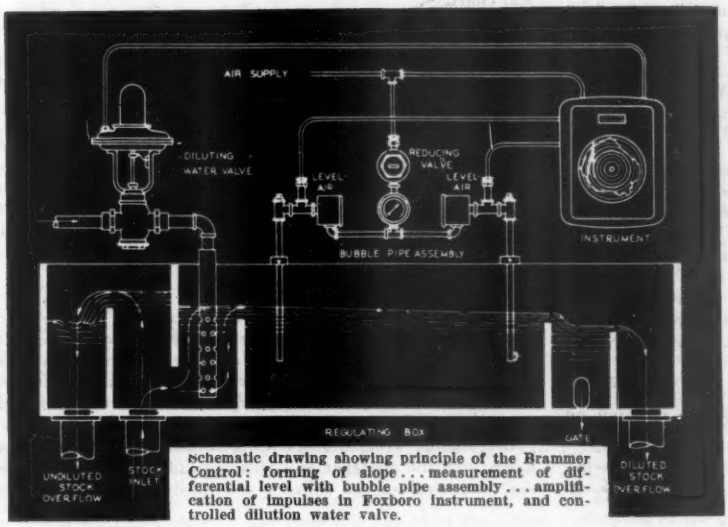
This cabinet is divided into three sections. The righthand

MACHINES OF MERIT

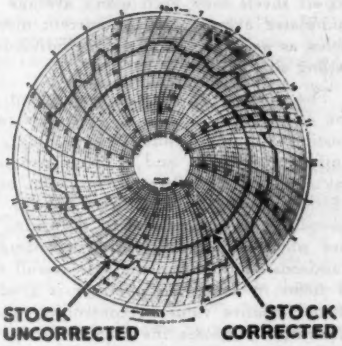
BRAMMER RECORDING CONSISTENCY CONTROL

Licensed under U. S. Patent Numbers: 2,302,326-2,302,327. Other Patents Pending

Instrument by Foxboro—For Accurate Regulation of Consistency and Recording Both Before and After Diluting Water Has Been Supplied



Schematic drawing showing principle of the Brammer Control: forming of slope . . . measurement of differential level with bubble pipe assembly . . . amplification of impulses in Foxboro instrument, and controlled dilution water valve.



Measures entire stock flow, not just a sample. Consistency adjusted by turning a knob. Completely air operated. Exposes trouble from irregular stock preparation. No lubricating except water valve stem.

Write for Brammer Catalog.

ROLL-O-FINER

ADVANTAGES: Continuous beating. Positive feeding. High consistencies. Uniform circulation. Controllable pressure. Uniform beating. Efficient treatment. High capacity. Low power. Compact, rugged design. Bedplate accessibility.

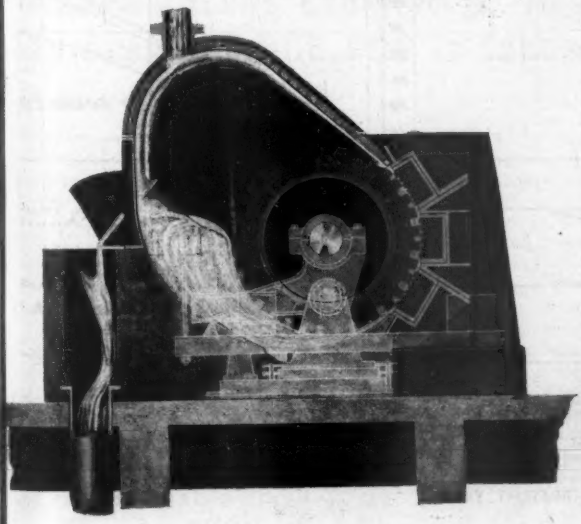
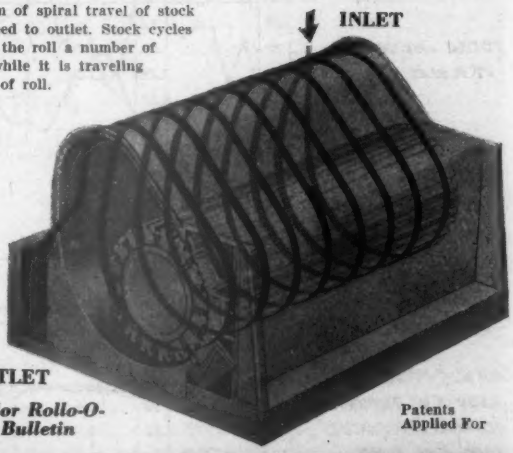


Diagram of spiral travel of stock from feed to outlet. Stock cycles around the roll a number of times while it is traveling length of roll.



Ask for Rollo-O-Finer Bulletin

Patents Applied For

PAPER and INDUSTRIAL APPLIANCES
Incorporated
122 East 42nd Street, New York, N. Y.

section holds a graphical chart 25½" long by 39" wide, for the posting of daily averages for the current month. Each day the averages for the preceding day's variables and the accumulated averages for the current month to date are posted. This gives to the operators the same information as that which is plotted daily on the permanent records in the Chart Room.

In the center section, there are two charts, each 25" long by 15" wide. One gives the monthly averages with the accumulated averages to date through the past year on all variables that appear on the daily chart. The other chart shows the current year, monthly and to-date averages. These daily and monthly graphical records are plotted in alternating colors, the same as the original charts in the Chart Room.

The section on the left is for progress records. Here, daily report sheets show each man's average percentage and his accumulated average for the current month on all of his variables, as well as a report of his individual averages for the preceding six months.

The purpose of the progress record is to create interest in the operators to obtain a percentage rating as near 100% as possible. As these ratings come closer, they result in a more uniform operation and a better product. These records are calculated in the Chart Room from operating variables over which the operator has direct control. Variables taken from recording instrument charts, indicating instruments, chemical and physical tests are rated according to their nearness to standards set to obtain the best overall results. Of the number of items in which an operator is graded, some may have a greater relative value in controlling quality than others. For illustration purposes, the progress record of operators in charge of the digester house will be used. The variables in which they are graded are:

1. Nearness to temperature curve on each digester. This is drawn on the temperature recording chart before it is put on to the instrument.

2. Per cent bleachability of pulp from each digester, having set standards according to the grade of pulp they are cooking.

3. Pounds blow pressure at time of discharging contents of the digester.

The first two have a relative value of 40% each while the third has a relative value of 20%. The operator, knowing that the rate is higher on the first two variables, tries to control the temperature a little closer and strives to come nearer to the standard per cent bleachability of the pulp from the digester. The per cent rating on the three variables are averaged for the day, and totals accumulated for the month to obtain to-date averages for the month. It is surprising how close the monthly averages are, for each operator, over a period of six months.

These progress record report sheets, showing each operator's per cent rating for the previous day, and his per cent rating for the current month are posted in the department record cabinet each day along with the variables plotted on the graphical chart.

Frequent Conferences

● Since the charts plotted in the graphical department provide such an extensive source of information on operations, frequent conferences in this department are desirable and necessary.

Every morning, the operating foremen meet with the manager and technical director in the conference room to go over the department report sheets and recording charts of the previous day's operation. By having these meetings, unusual operating conditions and changes that have been made are discussed. It is from these meetings, that changes are planned in the control of operation.

When a suggestion is made, at one of these meetings, that a particular recording chart appears to be slightly off, the instrument department foreman makes a note of such a condition and immediately investigates the instrument so that an accurate recording of the variable may be kept. After this instrument has been examined, a note is added to that chart showing the correction made, if any.

Every other week, the operating foremen meet in the Chart Room with the manager and technical director and every item that is posted on the thirteen graphical charts is gone over.

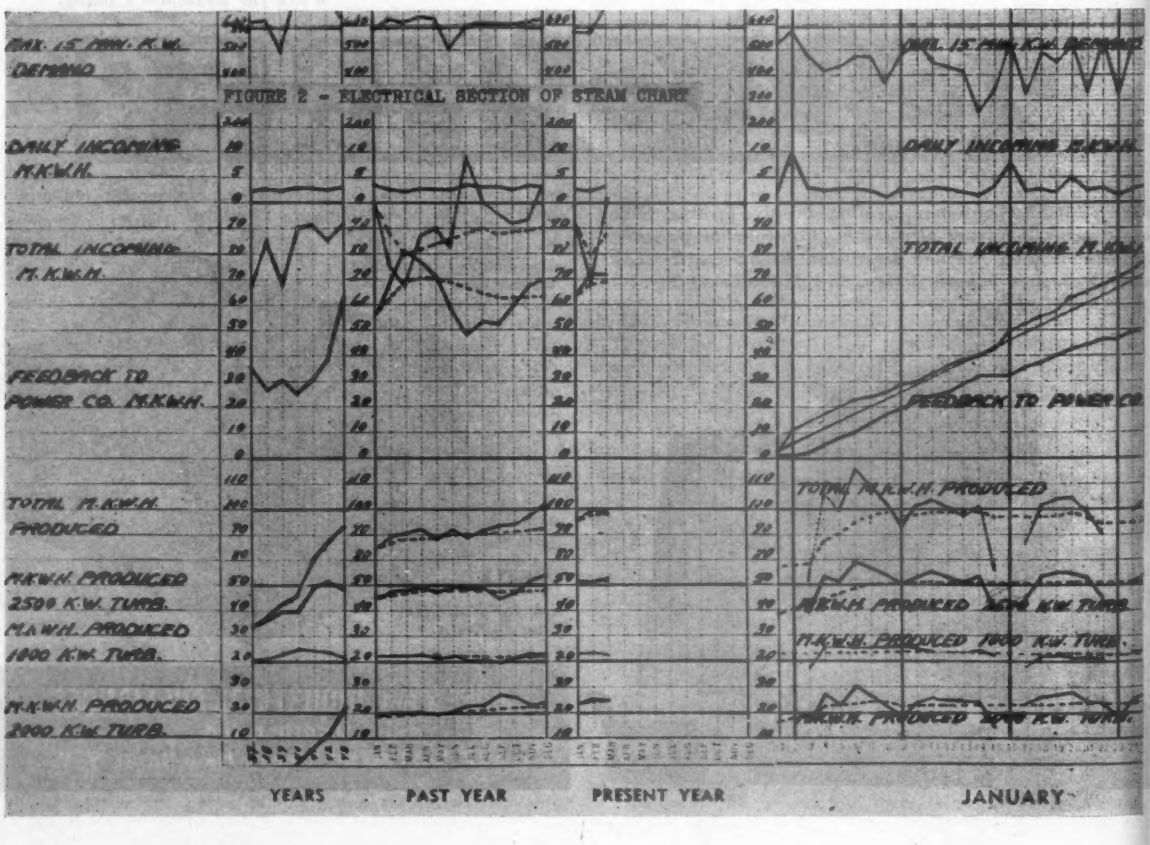


FIGURE 2 - ELECTRICAL SECTION OF STEAM CHART

Comments are made on variations that show up in the variables that are plotted. Notes are taken during the meeting of these comments and any suggestions made. A report is written, which is later distributed to the foremen. At these meetings, a suggestion may be made to put a small note on a board where some unusual condition exists or some change has been made. These notes are very useful in later months or years, because it is impossible to remember what took place when some trend changed on the board.

Before the end of each year, a meeting is held to determine what changes are to be made on the graphical charts for the coming year, other than scale adjustments. It is at this time, that all variables are discussed as to whether or not they still have a value on the chart. If they have served their usefulness, they may be discontinued on the chart, but a record in the work book is usually kept for future reference.

In most cases where a variable has been discontinued from the graphical chart, a new one has been added. It has been our experience that sometimes information, that is reported by recording instruments, has been used by the operator for observing the variations hour by hour, whereas, the graphical department has not made use of it. After some time, it may be advisable that that information from the recording instrument be plotted daily on the new chart for the coming year. Space may be provided on the graphical chart for this variable and the past averages picked up from the recording charts that have been filed away.

A reference to Figure 1 will show that the variable, known as Low Pressure Accumulator Temperature, was put on the graphical chart at the beginning of this year and we are now using the recording charts to pick up and plot temperatures for the past years of operation.

The use of the graphical record as a department has been demonstrated for its value in plotting variables and for its convenience in concentrating all operating records together. It can also be of further use as a service department.

Since the department is for the use of the management, foremen and workmen alike, a day does not pass that the Chart Room is not used many times for one or all of its services. Some of the foremen come in by themselves and pull out the charts and obtain the information they are seeking. If they are unable to find all the information they desire, they ask for the reports and recording charts for that particular period.

The machine room foreman may ask when a special car of pulp was run on the machine and what changes were made in the machine's operation. By looking at the machine room graphical chart, a small note was found that had been put on the chart the day the special pulp was produced. The machine room daily report and recording charts for that date were then taken from the files and the information in question was readily found.

Another request may be to review the recording charts of both accumulators at the time the low pressure accumulator was taken off the line. The recording charts were not in the current files but had been stored away in the pulp storage building. These recording charts for the accumulators were picked up and brought back to the Chart Room. The department foreman and the technical director reviewed these charts, and the information they contained, aided in the planning of the method to be used in taking the accumulator off the line for inspection. After they were through with these charts, they were returned to the pulp storage building file.

Requests for Graphs

Requests often come to the Chart Room to prepare graphs, showing variables that are related to certain subjects. For instance, the department might be asked to plot relationships of variables that affect the dirt count of pulp. Variables such as dirt count on pulp, chip dirt count, log size, production rate, bleachability, brightness, basis weight, etc., are plotted and the trends will show the closest relationship.

Every day, the Chart Room makes up pulp quality reports. These report sheets are the result of daily physical and chemical test, run on the finished product, in the laboratory. From these results, a set of quality curves are drawn in ink on 8½" by 11" graph sheets, showing Mullen, Fold, Tear and Freeness curves.

Other information listed on these quality graph sheets, but shown as figures are: average bleachability, dirt count, per cent air dry, brightness, basis weight and bale numbers represented. These curves are distributed to the management, technical director and all sales offices. This information keeps before them the up-to-date records on quality for each day's production.

Project chemists consistantly use the report sheets and recording charts on research or mill operating problems and much of their information comes directly from the graphical records.

Thus through a review of the procedure of a Chart Room, I have attempted to show how valuable and necessary the application of the graphical record can be to successful operation.

In any modern mill, the fullest use, of instrumentation and technical control, is not made until the wealth of records and information that they give are compiled and plotted, the trends noted and compared with other related subjects, and the entire history studied and made use of.

The operation of a Chart Room in both of our mills has proved very satisfactory and a similar system, whether modified to meet the needs of a smaller unit or enlarged to fill the requirements of a larger plant, should pay attractive dividends in the value received by its introduction into the modern industrial plant.

Walter DeLong Explains St. Regis Plans To Spend $3,000,000 in Tacoma, Wash.

• The St. Regis Paper Co. will spend up to $3,000,000 in additions and improvements on its Kraft Pulp Division in Tacoma, Wash., providing postwar conditions justify such an expenditure.

In making this announcement to the Washington State Planning Council recently, Walter DeLong, vice president and manager of the Tacoma division, said "many things will have to be taken into consideration."

He specified taxes, foreign competition in pulp markets, etc., indicating there would have to be hope for a fair return from such an extensive outlay.

Demand for kraft has greatly increased since the latest installations were made at Tacoma and there is expected to be an enlarged field for kraft uses after the war. Presently the division has two 126-inch trim Fourdrinier Flakt driers, six digesters and a bleach plant. The daily production of nearly 300 tons of pulp is being half bleached and half unbleached.

Mr. DeLong told the planning council that under a depreciated currency during the years before the war, the Scandinavian countries were able to ship pulp into the United States on a depreciated currency value and forced domestic pulp producers (one-fourth of U. S. market pulp is normally produced in the Pacific Northwest) to sell at from $25 to $30 a ton. The domestic producers were delivering pulp into the Great Lakes territory on the basis of $3 a ton freight.

Regarding prospects for a pulp and paper plastics materials industry—already launched by a number of prominent eastern mills—Mr. DeLong said that St. Regis was very heavily interested. He pointed out that St. Regis is manufacturing an automobile body out of pulp plastic material, which Mr. DeLong predicted would be a successful substitute for steel car bodies.

He said that St. Regis is making plastics in such a manner that paint can be impregnated into the material and color changes are not affected.

Mr. DeLong said the pulp and paper industry expected good times for four or five years after the war. But, he reiterated, that this is predicated on the possibility of some control of imported pulps from cheap labor pulp producing countries.

He stressed that investors could not be expected to put their money in an industry in which they did not hope for at least a minimum return.

Effects of Wood Variables And Chipper Damage on Pulp Quality

By C. A. ANDERSON*
Wood Technologist,
Camas, Wash., Division,
Crown Zellerbach Corp.

EFFECTS OF WOOD VARIABLES AND CHIPPER DAMAGE ON PULP QUALITY

● Everyone in the pulp and paper field is familiar with a chipper. It is a simple machine used to reduce wood to chips. The equipment used and the adaptation of this equipment is as variable as the weather. Reducing wood to chips is not a simple process as we are constantly working toward the goal of producing a good uniform chip as economically as possible. Wood species is the first step in this process.

Hemlock being the predominant species used for pulping in the Pacific Northwest, the data to be presented have been developed on this species.

Growth characteristics in a tree have a definite bearing on the chip and pulp quality. Experimental and mill trial runs have shown that climate, altitude, and location impart definite characteristics to a tree that carry on into the pulping process introducing proportional variations. These growth characteristics mark the wood in density, cellular formation, and texture. Pulping processes cannot cook quality into the wood. We get only some part of the potential pulping values inherent in the tree from growth. Therefore by systematic segregation and usage of our logs we will have progressed one step toward a uniform quality product.

The next step is chipping, and we cannot overemphasize its importance in relation to uniform pulp quality production. Whether it is necessary to produce an absolutely uniform length chip in order to obtain the best quality pulp is problematical. However, the most important part of the chipping operation is to reduce, or even eliminate entirely, the destructive action our present chippers exert on the cellular structure of the wood.

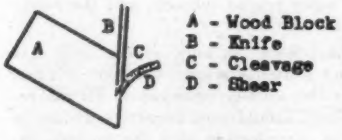


FIGURE I

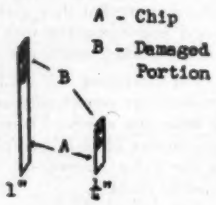


FIGURE II

In examining a chip we note the difference in appearance of the two ends. One is the shear or clean-cut end, and the other is the cleavage or bruised end, as illustrated.

As the chipper knife passes through a block of wood, the card or chipped portion is forced away from the wood block by the bevel plane receding the cutting edge of the knife. This forcing or peeling action exerted by the bevel plane of a knife creates a modulus of rupture in the cellular structure of a portion of the wood.

Pulping tests indicate the damage is fairly constant in chips whether one-quarter inch long or one inch long.

Report On Ten Tests

● A series of experimental cooks was made on the following chips:

1. Regular run chips.
2. Regular run chips retained on ¾-inch Laboratory test screen.
3. Regular run chips retained on ¾-inch Laboratory test screen with the bruised ends removed. Figure II.
4. Regular run chips retained on ¼-inch Laboratory test screen.
5. Hand made chips—¼-inch long.
6. Hand made chips—½-inch long.
7. Hand made chips—¾-inch long.
8. Hand made chips—1-inch long.
9. Hand made chips—1½ inches long.
10. Hand made chips—2 inches long.

Sample Number	Mullen		Tear At Maximum Mullen	
	Initial	Maximum	Initial	
1	90	161	1.89	1.17
2	89	168	2.14	1.30
3	95	203	2.22	1.14
4	35	118	2.66	1.28
5	84.5	200.5	2.44	1.28
6	91.5	221	2.72	1.23
7	96	223	2.88	1.40
8	90.5	214.5	2.79	1.33
9	87.5	210.5	2.53	1.19
10	77	198	2.69	1.26

All samples cooked in stainless steel baskets suspended in a sulphite digester.

Pulp tests made according to TAPPI Standards T200m43, T205m, and T200m.

Test Number One is indicative of average sulphite quality made from normal regular run chips.

In test Numbers Two and Three a sample was taken from the three-quarter-inch Laboratory test screen and divided into two qual parts. One-half was left intact, but in the other all of the damaged portion of each chip was removed with a band saw, retaining only the sound wood. The two samples were then cooked and the resulting pulp indicates very definitely that there is considerable loss in pulp strength due to the bruising action of a chipper knife.

Test Numbers Four and Five substantiate the statement that damage to the wood is fairly constant regardless of chip length. The short commercial chip shows considerable loss in pulp strength, while the hand made one-quarer inch chip produced exceptionally high strength pulp.

Test Numbers Five, Six, Seven, Eight, Nine and Ten represent test values of pulp produced from various lengths of hand made chips. We note that the three-quarter inch chip gave the best strength values, initial and maximum, of those sizes tested.

Test Numbers Five to Ten, inclusive, show that it is possible to produce sulphite pulp having mullen values equal to or better than sulphate pulp.

Whether kraft pulp strength values can be improved on the same basis as sulphite pulp has not been determined. I believe sulphate pulp quality would be improved proportionate to the reduction in cellular compression failures, but probably not as much as in sulphite pulp since kraft, with sufficient beating, normally develops high strength values.

A Mechanical Fault

The data presented indicate a degree of degradation in the chipping operation that is serious. It is a mechanical fault but not one that can be solved easily. The necessity of maintaining equipment capable of withstanding the terrific punishment a chipper absorbs in a normal operating day limits the field of improvements possible on our present equipment.

Figure III shows a cut of a disc knife with the throat exposed. Figure IV shows the same cut with the knife touching a block of wood.

In looking at these two diagrams one thing is very notice-

*Paper given at Pacific Coast Joint Annual Spring Meeting (Superintendents-TAPPI), Portland, Ore., June 3, 1944.

PAPER

17 million tons* of it!

GENERAL CHEMICAL COMPANY *products for the Paper Industry:*

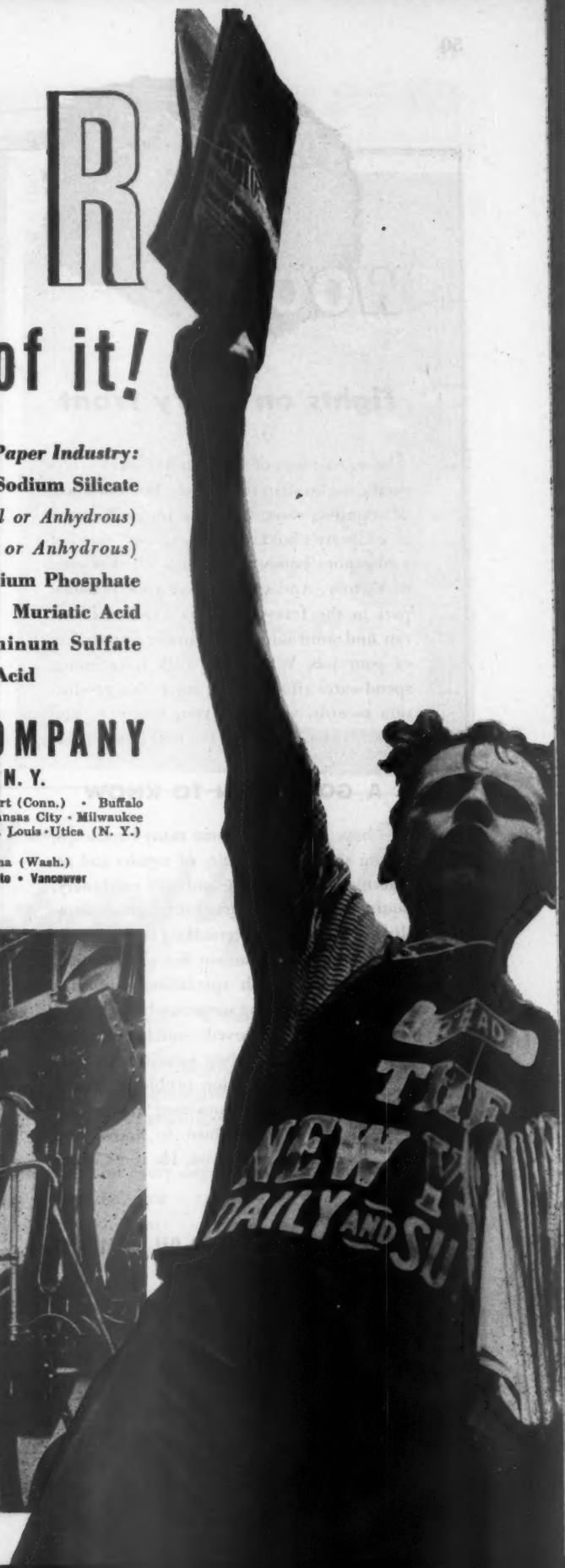
Aluminum Sulfate (*Standard and Iron Free*) • **Sodium Silicate**
Zinc Chloride Solution • **Glauber's Salt** (*Crystal or Anhydrous*)
Sodium Sulfide • **Sodium Bisulfite** (*Solution or Anhydrous*)
Crystal Alum, Potassium • **Salt Cake** • **Trisodium Phosphate**
Sodium Metasilicate • **Sodium Hyposulfite** • **Muriatic Acid**
Sodium Sulfite Anhydrous • **Sodium Aluminum Sulfate**
Epsom Salt • **Nitre Cake** • **Sulfuric Acid**

GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK 6, N. Y.

Technical Service Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo Charlotte (N. C.) • Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Milwaukee Minneapolis • New York • Philadelphia • Pittsburgh • Providence (R. I.) • St. Louis • Utica (N. Y.)

Pacific Coast Technical Service Offices:
Los Angeles • San Francisco • Seattle, Wenatchee and Yakima (Wash.)
In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver



*Estimated American Paper Production for 1943

able. The knife is not parallel with the disc. This is important because unless it is parallel with the disc the knife cannot cut through a block of wood. It is pulled through at an angle and we have a drawing action rather than a cutting action applied to the end of a wood block. This drawing action does two things—pulls the wood into the chipper and forces the card away from the wood. This forcing action is where we get compression failure in the chips.

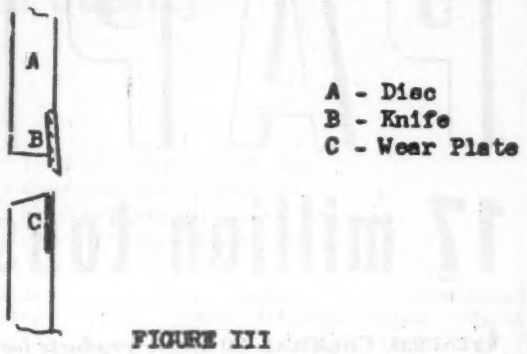


FIGURE III

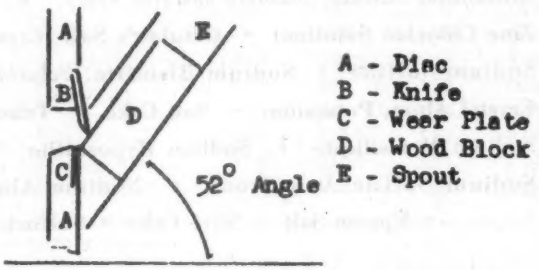


FIGURE IV

Chipper design should be altered to the extent of getting the knife parallel to the disc. Figure V is a simple illustration of how this can be done:

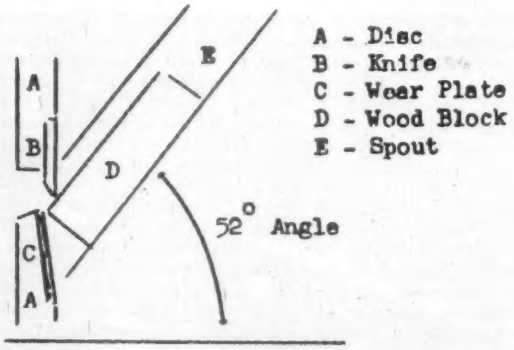


FIGURE V

This plan would call for a bevel plane on the disc face in the path of the wood cut starting from zero at the heel of the knife extending in to the throat at any predetermined angle. It would also be necessary to use some form of power feed in order to hold the wood block against the disc because we will have lost the force feed present in the former knife position.

There may be other possible ways to eliminate compression failure in the cellular structure of wood—R.P.M. of disc, angle at which wood is fed to knife, and type of wood used—but none will be successful until the drawing action of a knife is changed to a cutting action.

FOOD for Fighting Men— protected by PAPER

"The finest food becomes useless", says Quartermaster General E. B. Gregory, "if the package which carries it fails to protect it."

To the Quartermaster Department global war brought countless new packaging problems. Such perishable supplies as flour, sugar, salt, rice, coffee, grains and dehydrated, moisture-thirsty vegetables must be kept in perfect condition—on desert sands, in arctic snowfields or steaming jungles. This calls for an infinite variety of specially devised containers.

The essential paper industry is meeting and solving these problems every day. Wax-dipped paper boxes, asphalt-sealed boxes, box-in-bag or bag-in-box types, the now well-known V1 and V2 paper shipping cases—these are some of the war-born packagings that are successfully meeting the hazards of global war.

FOR SALE: 1-1250 KW Turbo Generator Set, Bleeder Type including Condenser—Current 3 phase, 480 Volt, 60 Cycle. Detroit Sulphite Pulp & Paper Co., 9125 West Jefferson Ave., Detroit, Michigan.

Kerry's Farewell Dinner; Stoddard Elected Traffic Secretary

● H. E. Kerry, general traffic manager, Rayonier Incorporated, who has moved his office from Seattle to the new administrative headquarters of the company, 122 East 42nd St., New York, was given a farewell dinner June 21 by his associates in the executive committee and railroad advisory committee of the Pacific Northwest Advisory Board on rail transportation.

The dinner was held in conjunction with regular meetings of the board at the Seattle Chamber of Commerce. Mr. Kerry, vice president of the board, was presented with a traveling bag, $50 war bond and other gifts.

Harold Stoddard, traffic manager, Soundview Pulp Co., Everett, Wash., was elected secretary of the Pacific Coast pulp traffic committee.

Tours Monsanto Plants

● George Pampel, advertising manager, I. F. Laucks, Inc., Seatle, and west coast representative of Monsanto Chemical Co., industrial and public relations department, made a six weeks' tour of Monsanto plants. Using the St. Louis headquarters plant as a base, Pampel visited the 13 Monsanto plants, including those at Springfield, Dayton and Alabama.

He made a study of a new Monsanto thermoplastic, Cerex, which can be boiled or sterilized and still retain its shape.

Larger Sales; Profits Decline

● Sales of St. Helens Pulp & Paper Co., St. Helens, Ore., were 9.3% higher in 1943 than in 1942 but costs were so much greater that net profits sagged off 9.7%. Net sales were $5,435,053 compared with $4,972,421. Against this rise of $460,000, costs of goods produced and sold were up $700,000 at $3,945,132 vs. $3,240,400.

"Cellulose Chemistry"— New Book By Heuser

"Cellulose Chemistry," by Emil Heuser, of the Institute of Paper Chemistry, published by John Wiley & Sons, New York ($7.50), is a well-organized book. It contains material as recent as October, 1943, although much military information was taboo.

Since 1924, when the author's work "Textbook" was first published, science dealing with the "magic fiber" has traveled a long way, and in Mr. Heuser we find an excellent guide for following the immense progress that has been made.

Mr. Heuser reviews and reconciles the findings and contributions of hundreds of chemists.

Was a Candidate

On the ticket in the Oregon primary election was the name of A. B. Lake, Pacific Paperboard Co. employe, who lost out in the contest for the nomination for treasurer of Multnomah County. Lake has acted as head of the Portland, Ore., office for the company, but of late has been employed in Longview, Wash., where the mill is located.

Two New Cellulose Plastics Developed

● Cellulose plastics, which now are largely made from wood pulp, now have some notable additions to their famous family.

Four prolific members of the family are well known, namely, nitrate, acetate, acetobutyrate and ethyl cellulose.

Benzyl cellulose is a new product now in laboratory stage. Now in small scale production is another known as sodium carboxy-methyl cellulose, which is soluble in water.

Just when benzyl cellulose will emerge from the labortory is uncertain. It is transparent. The chemical used is one allied to the toluol in TNT explosive. Benzyl cellulose has a lower melting point than previous cellulose plastics and may be molded by injection or extrusion with little or no plasticizer.

Hercules Powder Co. has introduced sodium carboxy-methyl cellulose.

"The material should be useful where hydrophilic colloids possessing marked suspending, thickening, stabilizing and film-forming properties are required," the company says. "Some of its possible applications are to thicken textile printing paste, to emulsify emulsion paints and lacquers and to provide a protective colloid for oil-in-water emulsions.

"Its film-forming properties make it useful in coatings, particularly for greaseproof coatings. Sodium carboxy-methylcellulose is supplied as a white, granular powder, odorless, tasteless and readily soluble or dispersible in water. Very viscous, stable aqueous solutions can be obtained with it. Aqueous solutions can be evaporated leaving colorless, tough, transparent films, which are unaffected by the common organic solvents, oils, fats and greases. Some salts and acids react with sodium carboxy-methyl-cellulose producing films insoluble in water."

Unlike nitrocellulose, cellulose acetate, ethyl cellulose and most other cellulose derivatives used as industrial materials, it is soluble in water. It is this property upon which its principal value in industry is based. "This is the newest of the compounds based on cellulose which has been the mother of many great chemical developments such as nitrocellulose for protective coatings, plastics, coated textiles and photographic film; cellulose acetate for plastics, photographic film and textiles; rayon by several processes including viscose, cuprammonium; and ethyl cellulose for plastics and protective coatings. This newest product enters fields which previously have not been touched by the cellulose derivatives."

Surveys Made at Camas For Postwar Equipment

● Crown Zellerbach Corp. is planning an extensive postwar program and is now having preliminary surveys made for construction work in the Camas, Wash., plant, J. E. Hanny, resident manager, has announced.

Mr. Hanny said improvements contemplated will include building construction and new equipment, all intended to improve the quality of the product.

Mitchell-Roberts Resigns

● J. F. Mitchell-Roberts, manager of the foreign and export division of Oliver United Filters Inc., has resigned. His association with the company dates back to 1920.

Hercules Appointments

Elmer F. Hinner, member of TAPPI, has been appointed general manager of the Virginia Cellulose Dept., Hercules Powder Co. Charles H. Lickle was appointed manager of cellulose purchases.

MILTON J. MAGUIRE, Resident Manager, Paper Makers Chemical Dept., Hercules Powder Co., Portland, Ore. The Portland plant was built in 1929-30. Mr. Maguire has been with the company since 1922, representing Hercules for a number of years in New York and New England.

Walter Higbee was stationed in Portland for a short period recently as service man for Hercules but has returned to his regular post at Kalamazoo, Mich.

John H. Smith Named To Oregon Conservation Group

● Governor Earl Snell of Oregon has appointed John H. Smith, president of Hawley Pulp & Paper Co., and also president of the Pacific Coast Association of Pulp & Paper Manufacturers, to the "Keep Oregon Green" general committee, which directs a very active fire prevention and forest conservation movement in that state.

A. O. Smith Distributor

The A. O. Smith Corporation, Milwaukee, Wisconsin, announces the appointment of Pacific Metals Co., Ltd., 3100 19th St., San Francisco, and 1400 So. Alameda, Los Angeles, as distributor in California, Nevada and Arizona for SMITHway Certified Electrodes, A. C. Welders, and other welding equipment.

Rayonier Sales Down; Increases Timber Holdings

● Shortages in log supplies and manpower in the Pacific Northwest resulted in diminished profits for Rayonier Incorporated, manufacturers of dissolving pulps, according to the company's annual report.

Sales for the year ended April 30 amounted to $22,823,538, compared with $28,427,865 in the previous year. Consolidated net profit of $1,688,709 compared with $1,877,459 in the 1933 fiscal year.

The report discloses that during the year Rayonier added substantially to its timberland holdings.

Company Organized For Re-Logging Project

Pulp Wood Products, Ltd., has been incorporated in Vancouver, B. C., with $100,000 capital, and plans to proceed with the salvaging of small logs on Vancouver Island are now being formulated.

T. G. McLean, Vancouver lawyer, is representing the principals in arranging the necessary legal details in connection with the incorporation, but he states that he is unable to disclose the identity of the financial backers until a later date.

It is understood that the company contemplates establishment of a central camp near Nanaimo, B. C., and to operate portable mills on areas that have been already covered by primary logging operations.

In rough outline, the plan will duplicate that already undertaken on a large scale by the British Columbia government in partnership with Powell River Co. and Comox Logging & Railway Co.

Medal for Ludwig's Son

● At Camas, Wash., victory center on June 20, the 17-month-old son of Sgt. Michael R. Ludwig received the U. S. Air Medal pinned in honor of his father who lost his life in the service while on leave from the Camas mill of Crown Zellerbach Corp. Held in the arms of his mother and surrounded by his uncles, Cpl. Don Golladay and S/Sgt. James Golladay, the medal was pinned on the infant by Major R. L. Gibson, Portland Air Base.

Aull Elected Chairman, Driscoll, President, of Sorg

● Directors of the Sorg Paper Co., Middletown, O., at a meeting May 31, elected J. A. Aull chairman of the board and his son-in-law, Donald G. Driscoll, was elected president, succeeding Mr. Aull.

Mr. Aull was vice president of the Paul A. Sorg Co. from 1908 to 1914, and president and director of the predecessor and present company from 1914 to 1944. Prior to this association, he made a name for himself as general agent for the Denny estate in Pittsburgh.

Major changes and additions since Mr. Aull became associated with the company:

In 1908, the old Sorg machine room was replaced with a new three-story building, and a new Fourdrinier paper machine installed.

In 1917, The W. B. Oglesby Paper Co. was purchased.

In 1923, The Frank Smith Paper Co. was built.

In 1927, the present Sorg power plant was constructed.

In 1931, The Paul A. Sorg, W. B. Oglesby and Frank Smith paper companies and Paul A. Sorg Realty Co. were merged to form the Sorg Paper Co.

From 1936 to 1940, the Sorg Paper Co. operated the Superior Lawrence Bag Division.

In July, 1941, the Vancouver Kraft Corp.'s pulp mill at Port Mellon, British Columbia, was purchased.

Mr. Driscoll, the new president, was born in St. Paul, Minn., in 1897. Upon graduation from the Sheffield Scientific School, Yale University, in 1920, he became associated with Sorg and was elected secretary in 1927. From 1920 utnil 1938, when he was elected executive vice president, he was in the purchasing and sales departments.

Mr. Driscoll served on the War Production Board's pulp allocation industry committee and overall paper industry advisory committee.

For several years he was a director of the Y.M.C.A., and has, for several years been industrial vice chairman of the American Red Cross campaigns.

Many Returning Vets Get Jobs At Camas

● A veteran's rehabilitation committee has been established at the Crown Zellerbach mill at Camas, Wash., according to J. E. Hanny, resident manager.

On the committee are R. B. Haight, personnel assistant; Jack Robertson, safety supervisor; Les Golladay and Sam Runyan, presidents of union locals, and Elizabeth Schwartz, personnel department secretary.

Thus far 23 men who comply with the above specifications have been returned to their old jobs, or to work of similar character. In addition, 13 returned veterans without previous papermaking experience have been placed.

WANTED: 1—Fourdrinier and 1—cylinder machine for export. Can use machines trimming from 70" to 110". Can also use all accessory equipment. SHARTLE BROTHERS MACHINE COMPANY, Middletown, Ohio.

WANTED: For Mexico, paper mill executive to manage modern Kraft pulp and paper mill with ground wood department. Must have general knowledge of mill operation and maintenance of mechanical and electrical equipment. Knowledge of Spanish advantageous but not essential. Very healthful location. Splendid opportunity with great future for the qualified man. Applications will be handled confidentially if so desired. State salary desired. Address Box 7, Pacific Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

FOR SALE — 1 4-pocket Carthage grinder with 1,000 H.P. synchronous motor, 3 phase, 60 cycle, 2200 volts. Starting equipment. Good Shape. SHARTLE BROTHERS MACHINE CO, Middletown, Ohio.

FOR SALE: 1-1250 KW Turbo Generator Set, Bleeder Type including Condenser—Current 3 phase, 480 Volt, 60 Cycle. Detroit Sulphite Pulp & Paper Co., 9125 West Jefferson Ave., Detroit, Michigan.

Canadian Mills To Quit Making 30-Lb. Newsprint

● Production of 30-pound newsprint in Canadian mills, carried out on an experimental basis in May and June, is expected to be discontinued. U. S. publishers, who campaigned for the lighter newsprint, now have reversed this position, asking the WPB to ban it, following discussions with officials of the Newsprint Association of Canada.

Canadian newsprint producers emphasized that there was no objection to continued production of the lightweight pulp providing that the available newsprint supply in the United States was distributed equitably, and customers of Canadian mills would not be placed at a disadvantage. They said they were willing to produce newsprint of any weight to meet customers' demands so long as fair distribution could be assured.

It was pointed out, however, that continued production of 30-pound newsprint would result in reduced deliveries on a tonnage basis to the United States, and that the only fair distribution would be application of reduction in deliveries to the total supply pool of United States consumers as a whole and not just to consumers using newsprint from Canada. When United States deliveries were reduced the reduction was applied to all consumers, and when Canadian mills increased their deliveries all consumers and not just Canadian mills shared in the benefits.

Canadian Newsprint Exports Increased to War Theaters

● That the Canadian pulp and paper industry very definitely is in this war has been evidenced further by figures just released on export movement of Canadian newsprint.

Supplies for non-war purposes, to buyers on this continent, have been curtailed to make possible increased use of pulp for war purposes, and to permit expanded shipments of white paper and newsprint to overseas points, partly in connection with propaganda and political planning in the war.

Current production of newsprint is above the amount that had been calculated in government estimates—but the increased amount, instead of being added to supplies available for U. S. publishers, is being specifically embarked for use by "Yank," the newspaper of the U. S. armed forces, and other military needs. Figures for the first five months of this year reveal that exports to the United States have been whittled down to make possible substantial increase in overseas shipments.

CANADIAN NEWSPRINT EXPORTS

(In Short Tons)
Compiled from D. B. S. Reports

Destination.	During May 1943	During May 1942	First 5 Months 1943	First 5 Months 1942
United Kingdom	678	6,751	6,663	18,173
Eire	110	.....	2,594	109
Continental Europe	630	110	858	2,374
Mediterrean area	113	53	972	698
Egypt	154	336	753	1,862
British South Africa	.....	.....	48	8,431
Other Africa	152	152	404	445
British India, Ceylon & Burma	2,968	1,669	4,767	5,866
Australia	66	.....	621	6,154
New Zealand	6,203	.....	9,316	330
Argentina	7,327	6,584	18,396	21,308
Brazil	2,118	166	17,254	9,111
Uruguay	965	71	5,839	1,821
Other South America	1,493	545	6,207	12,712
Mexico	522	1,863	1,635	5,888
Cuba	909	.....	4,639	3,542
British West Indies	150	209	1,447	644
Other Caribbean area	720	140	2,486	5,498
Others	963	180	2,915	1,205
	26,241	18,829	87,814	106,171
U. S.	200,472	229,154	991,365	1,164,794
Total	226,713	247,983	1,079,179	1,270,965

INDEX OF ADVERTISERS